KEMENTERIAN PENDIDIKAN TINGGI
JABATAN PENDIDIKAN POLITEKNIK DAN KOLEJ KOMUNITI

EXTENDED ABSTRACT: E-PROCEEDINGS DIGITAL TECHNOLOGY 4.0 PROJECTS IDEATION 2023

2023

Premier Digital
Tech Institution

Project Coordination Unit
Research & Innovation Unit

DEPARTMENT OF INFORMATION AND COMMUNICATION TECHNOLOGY
POLITEKNIK UNGKU OMAR

BLOCKCHAIN
Technology

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TABLE OF CONTENTS

TABLE OF CONTENTS

TABLE OF CONTENTS

TABLE OF CONTENTS

Preface

In today's world, with the rapid growth of the Fourth Industrial Revolution, it's evident that numerous exciting and groundbreaking ideas abound. DTPIC 2023, the Digital Technology 4.0 Projects Ideation Colloquium, was established to unite the brightest minds, creative thinkers, and tech industry leaders to foster a new era of innovation and idea development.

As we integrate mobile apps, web apps, virtual reality, 3D games, artificial intelligence, augmented reality, and blockchain technologies, it becomes increasingly vital to explore and generate fresh ideas in these domains.

This extended abstract compilation of e-Proceedings showcases the power of collaboration and the vibrancy of the industrial community. It encompasses concepts, prototypes, solutions, and discussions that emerged during the colloquium. Each contribution provides readers with unique insights into potential futures and the challenges that need to be addressed.

I'd like to extend my heartfelt gratitude to all the contributors, keynote speakers, reviewers, organizers, and participants who made this event possible. I also want to express my appreciation to the industry experts and academic scholars who helped refine the ideas for the Diploma in IT (Digital Technology) Final Year Projects (FYP). Their dedication and enthusiasm have transformed this colloquium into more than just an event; it has become a catalyst for global change. My hope is that this publication will spark conversations, collaborations, and further innovations in the ever-evolving realm of Digital Technology 4.0.

Hamimah Salleh

Head of Department
Information and Communication Technology
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ORPHANAGE MANAGEMENT SYSTEM

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ABSTRACT

Nowadays a lot of the information about orphanage houses giving abused children is around social media, so it will give the bad perception of the orphanages to the people. It will make people scared to help any orphanage because of the news about the orphanage's society.

Keywords: orphanage, society

INTRODUCTION

As Orphanages increase in a day-to-basics simultaneously the helping hands also increase in the higher range. It happened because the economy of this country is in a bad condition that the price of all needs of people increases highly. So, a lot of the orphanage houses are difficult financially to raising all of the orphanages under them. This system also can help people to donate their money to the right orphanage house. It happened because without this system people will be difficult to find the real orphans and the less knowledge about the donation details of the orphan's house. This system was developed to help to reach needy orphans through volunteer donations. It allows the user to search and find the orphanages on the internet and then they can donate to the orphanages that they choose.

PROBLEM STATEMENT

The current orphanage management system is a less efficient and streamlined approach to managing the daily operations of orphanages. There is a need for an automated system that can manage the process of children's admission, track their health and educational progress, manage inventory, and facilitate communication with donors and volunteers. Additionally, there is a need for a system that can generate reports and analytics to aid in decision-making and fundraising efforts. Without such a system, orphanages may struggle to provide the necessary care and support to the children under their care.

OBJECTIVE

- People will know the information about the orphanage and the children's information.
- Orphanage Management System is to improve communication within the orphanage management team.
- The system allows the management to send messages, updates, and notifications to the staff, volunteers, and donors.

MATERIALS AND METHODS

Methods-

Rapid Application Development (RAD)

Materials-

- Programming languages that we are using is Java, Python, or PHP to develop the orphanage management system.
- Database management system: We will use database management system to store and retrieve data which is MySQL as a database management system.
- Web development tools: You can use web development tools such as HTML, CSS, and JavaScript to create a user-friendly and responsive user interface.

SCOPE

- Communication: The system should allow the orphanage staff to communicate with donors, volunteers, and other stakeholders through email, SMS, or other messaging platforms. It should also allow for sending updates, newsletters, and notifications about events and activities.

- Child Management: The system should allow the orphanage staff to manage the children's details such as their admission information, health records, educational records, and daily activities. It should also allow for tracking of their progress and updating their records as required.
- Staff Management: The system should allow the orphanage staff to manage the staff's details such as their personal information, roles, responsibilities, and schedules. It should also allow for tracking their performance and updating their records as required.

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EXPECTED RESULTS AND DISCUSSION

- Providing accurate and up-to-date information about the orphanage's operations and finances, the system can help management makes better decisions about resource allocation, resulting in better outcomes for the children in their care.
- The system can help the orphanage management better manage and maintain records of children, staff, volunteers, and donors. The system can also provide analytics and insights into various aspects of the orphanage's operations, such as donor behaviours and volunteer engagement.

CONCLUSIONS

Managing an orphanage is complex and challenging for a society that requires careful planning and execution. It the important to ensure the children's physical, emotional, and psychological needs. It is because need a Safe environment to grow up. For ensuring the success of an orphanage, this system will be part of non-governmental organizations and the community at large. This partnership can provide additional resources, expertise, and support to enhance the quality of care provided to the children.

ACKNOWLEDGEMENTS

We would like to express our heartfelt gratitude to all those who have contributed to the development and success of the Orphanage Management System. We also thank our team members who worked tirelessly to bring this system to life, overcoming countless technical challenges and ensuring that the end product is of the highest quality. Furthermore, we acknowledge the supervisor's support who is Madam Nanthini D/O Anpalakan. Last but not least, we would like to express our gratitude to the orphans themselves, who inspire us with their resilience and optimism despite the challenges they face. It is our hope that the Orphanage Management System will contribute to improving their quality of life and help them achieve their full potential.

Thank you all for your contributions, without which this project would not have been possible.

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MYService

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ABSTRACT

MYServices is a website that can help people in finding services to repair or service their home appliances. As example, for someone who just move into a new house and does not familiar with the city or maybe someone who busy, they can use this website to find people who do the service for them. By using this website, it can save their time since they just need to find workers through this website. On top of that, this website can give opportunity to people who has skills in do the services by searching jobs in this website. By developing this website, it is expected that this MYService site will help a lot of people, save their time and help people in advertising their service in this website. In conclusion, this website is useful and helpful for all people in finding services for their home appliances and indirectly increasing employment opportunities.

Keywords: service finder, home appliances

INTRODUCTION

Users can use this website to get excellent and trusted service close to their homes as needed even though, it is probably common knowledge that it is too difficult to even consider seeking such aid or services for homes these days. Users of MYService website can rate a worker's propensities, charges, timing, commitment, and behaviour. With today's fast-paced and highly competitive business landscape, service providers will have a hard time capturing customers attention that lead to missed opportunities and potential loss of business. Therefore, MYService website provide a feature that help service provider to advertise their service to reach their targeted customer. By adding a detailed service provider profile that make it easier for them to advertise their service. Difficulties in finding a reliable and trusted service provider website in these eras can lead to a frustrating and time-consuming process. Hence,MYService website aims to help these people in making their search a lot more easier and quicker.A search tool features that allow customer filter search result that make it easier for them to find the right service provider.Job seeker that seeking for a job opportunities often face challenges in locating and accessing job opportunities that align with their interests, qualification, and skill. Thence, MYService is developed to help job seekers gain employment opportunities. By include a job board that is specifically designed for the service industry. In the nutshell, by developed this platform, MYService website will help people in changing their life.

PROBLEM STATEMENT

The service sector has grown highly competitive in the modern age so that can be difficult for service providers to market their offerings successfully and efficiently. With so many businesses fighting for customers' attention, service providers struggle to stand out from other providers and effectively target their targeted audience. Additionally, customers struggle to identify the correct expertise to meet their specific needs and have a hard time finding service providers in their neighbourhood. Even though a lot of people use online directories or search engines to find service providers, these tools can be inaccurate and frequently don't deliver correct or up-to-date information. Lastly, it can be challenging for job seeker in this sector to locate jobs that fit their interests and skill set.

OBJECTIVE

There are three objectives in developing MYService website. The first objective is to create a user-friendly platform that enables service providers to efficiently and effectively market their services.In this platform will be added a detailed service provider profile that make it easier for them to advertise their service. The second objective is in this platform also will be added a user- friendly search tool that allow customer filter search results by location, specialty, and other relevant criteria that make it easier for them to find the right service provider in local area. Lastly, this platform also will be including a job board that is specifically designed for the service industry, which should allow job seekers to search and apply for positions that match their skills and interests.

MATERIALS AND METHODS

Materials
MYService will be developed using PHPMYADMIN to create a database for our website to store users' data. The system used HTML, CSS, PHP language to develop this website.

Methods

To develop this system, agile methodology prototype will be used. Agile methodology is an approach to project management that focuses on flexibility, collaboration, and frequent feedback. Instead of planning a project from start to finish and then executing that plan in a linear fashion, Agile methodology breaks a project down into smaller, more manageable parts called sprints.

Fig. 1 Agile Methodology Diagram

EXPECTED RESULTS AND DISCUSSION

MYService website provides a Customer Service feature, such as help center, FAQs and a contact form where user that have any inquiries can ask question or give any suggestion for improvement. Website that has user-friendly interface. Users can easily search, and filter services based on their specific needs and preferences. For example, if a user wants to search for refrigerator services they can just search and filter it which makes the task easier and faster. Website that provides a messaging or booking system for user to facilitate communication between service providers and customers. This messaging or chatting features, let customers that have confusion to ask any question regarding the service that the service provider provides.

CONCLUSIONS

In conclusion, this website is really useful and helpful for people that are not skillful in repairing their home appliances. So, with this MYservices website it can help those people find excellent services for repairing their home appliances by just booking a service using this MYservices website. This website also indirectly helps increase employment opportunities.

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phizTune

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ABSTRACT

Face expressions are the primary means by which people communicate their emotions. The users' facial expressions are what is meant by "phiz" in this context. Our approach seeks to identify facial expressions that convey a person's sentiment. A user's current feeling is used to create a playlist of music on demand. It outperforms the previous literature's approach in terms of computational efficiency. The user of this web-based application can converse with the chatbot. When an emotion is recognized, music that links to YouTube or other Google platform music sources will begin playing on the music player. To ensure that the detection is clear, the person should be in a lit environment. The website is simple to use, and users may locate the music they're seeking quickly by choosing their mood from a list of available alternatives. Users can also store playlists and their favorite music for later usage. Additionally, the website has a section where users can look through the newest musical releases and find new artists. The main objective of our music recommendation web-based application is based on users' facial emotions and is to provide users with suggestions that match their preferences.

Keywords: phiz, facial expression, website, emotional detection

INTRODUCTION

As music streaming platforms continue to gain popularity, the demand for personalized music recommendations has increased. Our proposed project, phizTune, aims to create a music recommendation system that uses computer vision techniques and machine learning algorithms to recognize facial emotions in real-time and generate a personalized playlist based on the user's emotional state. Our project's main objective is to enhance users' musical experience by accurately identifying their emotional state and suggesting personalized song recommendations that cater to their mood. While music can be a useful tool for managing emotional stress, finding the right music can be challenging. Facial expression recognition is a complex process that may lead to inaccurate recommendations. Therefore, a web application that can recognize facial emotions and suggest songs can provide personalized recommendations that match a user's mood, creating a more effective way to manage emotional stress. Personalized recommendations are essential for a satisfying user experience on music streaming platforms. Our project aims to develop a web application that recognizes facial emotions and suggests songs to provide users with an effective tool for managing emotional stress. By utilizing facial expressions to determine a user's emotional state, the application can offer personalized song recommendations that match their mood, creating a more enjoyable and satisfying musical experience.

Additionally, we aim to implement machine learning algorithms in the web application to improve the accuracy of facial expression recognition and song recommendations. These algorithms can learn from user feedback and adjust song recommendations based on facial expression recognition accuracy, resulting in more personalized and accurate song recommendations over time. Our ultimate objective is to improve mental health and well-being by providing users with a personalized tool to manage emotional stress. By catering to their specific emotional states and needs, the application can create a more pleasant and effective way for users to manage their emotional well-being, ultimately enhancing their overall quality of life. We hope that by discovering new music that they love and understanding the relationship between their mood and behavior, users will be empowered to make healthy changes in their lives.

PROBLEM STATEMENT

Music can be a valuable tool for managing emotional stress, but finding the right music can be challenging. A web application that recognizes facial emotions and suggests songs can provide personalized recommendations that match a user's mood, creating a more effective way to manage emotional stress.

Facial expression recognition is a complex process that may result in inaccurate recommendations. However, machine learning algorithms can be employed to improve accuracy by learning from user feedback and adjusting song recommendations based on facial expression recognition accuracy.

Personalized recommendations are crucial for a satisfying user experience in music streaming platforms. By utilizing a web application that recognizes facial emotions and suggests songs, users can receive personalized recommendations that cater to their current emotional state, resulting in a more engaging and satisfying musical experience.

OBJECTIVE

The objective of this phizTune comes with three different sections as:

The main goal of developing a web application that can recognize facial emotions and suggest songs is to provide users with an effective tool for managing emotional stress. By using facial expressions to determine a user's emotional state, the application can offer personalized song recommendations that match their mood, creating a more enjoyable and satisfying musical experience.

Implementing machine learning algorithms in the web application is another objective, aimed at improving the accuracy of facial expression recognition and song recommendations. These algorithms can analyze user feedback to adapt to individual differences and environmental factors, resulting in more accurate and personalized song recommendations over time.

The ultimate objective of the web application is to improve mental health and well-being by providing users with a personalized tool to manage emotional stress. By catering to their specific emotional states and needs, the application can create a more pleasant and effective way for users to manage their emotional well-being, ultimately enhancing their overall quality of life.

MATERIALS AND METHODS

Materials

Facial recognition technology (such as OpenCV or TensorFlow), Music database or API (such as Spotify or YouTube Music, User account database, Server infrastructure for hosting the website and database.

Methods
- Facial Expression Recognition:

The website will analyze the user's face expression using facial recognition technology to extract significant elements that could indicate their mood, such as eye movement, brow furrows, and mouth shape. Machine learning algorithms which is known as OpenCV with facial databases in it with trained algorithms could be used to process facial expression data and categories the user's mood as happy, sad, or neutral.

- Music Recommendation:

The website will suggest music based on the user's mood classification and how its categories their present emotional state. Songs that fit the user's mood would be found in the music database or the connection another website database like Spotify or YouTube Music could be played either directly on the website or through a connected music streaming service.

- User Account and Emotion Tracking:

Users create personal accounts on the site that allow them to track their mood and mental state over time. This site collects data about your mood, music preferences and listening habits and can be used to generate weekly reports on your mental state. Users can also add mental health notes and other information. These are saved in your account and can be used for further analysis and research.

- Methodology

The PhizTune uses Rapid Application Development (RAD) is a software development methodology that emphasizes iterative and collaborative development cycles, focusing on speed and flexibility. The RAD approach aims to shorten the development time by involving users and stakeholders in the development process and delivering working software quickly.

RAD is a response to traditional software development methods that often require extensive planning and design before any coding begins. In contrast, RAD emphasizes prototyping and iterative development, where the software is developed in small increments, and each iteration builds on the previous one.

EXPECTED RESULTS AND DISCUSSION

Recommended Songs or Playlists: One expected output of the system could be a list of recommended songs or playlists that match the user's emotional state. For example, if the user is showing a happy expression, the system might recommend upbeat, cheerful songs or playlists.

Real-time Emotion Tracking: Another expected output of the system could be real-time tracking of the user's emotions as they listen to music. The system could use computer vision technology to detect changes in the user's facial expression and adjust the music recommendations accordingly.

User Feedback: The system could also provide a feedback mechanism where the user can rate the recommended songs or playlists based on their preference and emotional response. The feedback can be used to improve the system's accuracy and personalization over time.
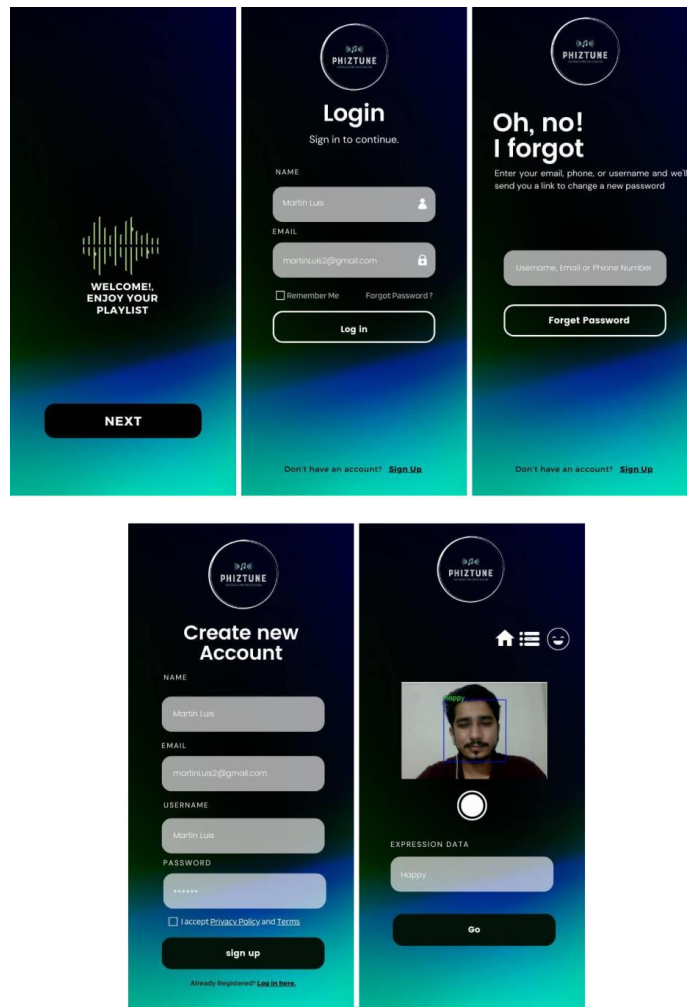
Fig. 1: Interface of the phizTune

In short, PhizTune is a website that uses facial recognition technology to recommend music to users based on their current emotions and moods. The problem of traditional music suggestion algorithms that do not consider the user's current emotional state is solved by this site's innovative music recommendation approach. In addition, the site offers users the ability to monitor their own emotional and mental well-being over time, providing important context regarding their behavior and mood. PhizTune is a cutting-edge solution for music fans looking for new music that perfectly captures their current state of mind and emotions.

ACKNOWLEDGEMENTS

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WEB GAMES RENTAL (WGR)

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ABSTRACT

Web Games Rental (WGR) is an online platform that provides a convenient and affordable way for gamers to rent their favorite video games on physical discs for consoles such as PlayStation and Xbox. By using QR code technology, users can instantly book their rentals without waiting in lines or experiencing shipping delays. The platform offers a broad selection of games for rental, enabling users to try out new titles without committing to a purchase.

Keywords: QR code, rental, online platform

INTRODUCTION

WGR is an innovative online platform designed for gamers who prefer playing on consoles like PlayStation and Xbox using physical discs. The platform uses QR code technology to provide a new level of convenience and affordability in video game rental. By scanning the QR code provided, users can instantly book their rentals and begin playing their games almost immediately, without the need to wait in lines or for shipping delays. With a wide selection of games and a simplified interface, WGR offers an accessible and appealing option for gamers looking to try out new titles without committing to a purchase.

PROBLEM STATEMENT

Gamers who prefer playing on consoles like PlayStation and Xbox using physical discs often face several limitations when using traditional video game rental services. These services typically involve waiting in lines or experiencing shipping delays, which can result in lost time and frustration. Additionally, traditional rental services often have a limited selection of games and can be expensive, making it difficult for gamers to try out new titles without committing to a purchase. WGR addresses these issues by providing a straightforward and cost-effective way for gamers to rent their favorite video games on physical discs without the hassles of traditional rental processes.

OBJECTIVE

The objective of WGR is to provide a convenient, affordable, and straightforward way for gamers to rent their favorite video games on physical discs for consoles like PlayStation and Xbox. By using QR code technology, the platform aims to eliminate the need for waiting in lines or experiencing shipping delays, enabling users to start playing their games almost immediately. Moreover, the platform aims to offer a wide selection of games for rental, allowing gamers to try out new titles without committing to a purchase.
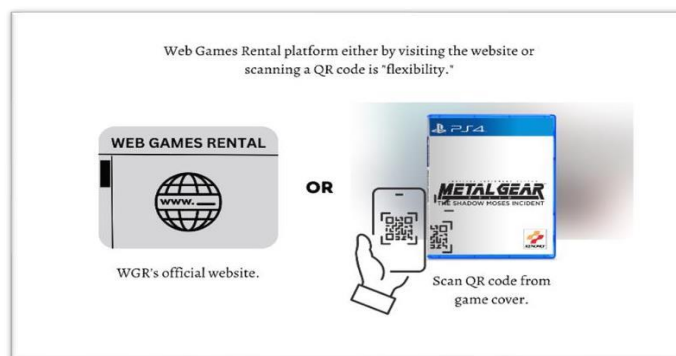
Fig. 1: Web Games Rental Concept

MATERIALS AND METHODS

Materials

WGR is an online service that can be accessed through a web browser on a computer, tablet, or smartphone.

Methods

To use the platform, users simply browse through the selection of available games, select the game they want to rent, and scan the QR code provided to instantly book their rental. The platform's intuitive interface and QR code technology allow for quick and easy rental booking without the need for any additional equipment or materials. Users can pay for their rental using a credit card or other online payment methods, making the process of renting a video game as seamless and hassle-free as possible.

EXPECTED RESULTS AND DISCUSSION

Expected Results:

WGR is expected to provide a more convenient and cost-effective way for gamers to rent physical copies of their favorite video games. By eliminating the need for waiting in lines or experiencing shipping delays, the platform is expected to offer a more streamlined rental service. Additionally, the platform's wide selection of games is expected to enable gamers to try out new titles without committing to a purchase.

Discussion:

WGR has the potential to revolutionize the video game rental industry by offering a more streamlined rental service. The use of QR code technology eliminates the need for traditional rental processes, reducing wait times and enhancing the overall rental experience. However, the success of the platform will depend on factors such as pricing, game availability, and user satisfaction. If WGR can provide a competitive pricing structure, offer a wide selection of games, and provide a positive user experience, it has the potential to become a popular platform for renting physical copies of video games.

CONCLUSIONS

In conclusion, WGR provides a convenient and cost-effective way for gamers to rent physical copies of their favorite video games. The use of QR code technology eliminates traditional rental processes, reducing wait times and enhancing the overall rental experience. Additionally, the broad selection of games offered on the platform allows users to try out new titles without committing to a purchase. However, the success of the platform will depend on various factors, including pricing, game availability, and user satisfaction. If these factors are managed well, WGR has the potential to become a popular platform for renting physical copies of video games.

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iStudent@POLYCC

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ABSTRACT

iStudent@POLYCC is one of the efforts we have made to help students in polytechnic and college community who have a self-issue to keep remembering each assignment due date that they could not miss. Once we launch the apps, the user needs to go through the log in process, where the user must insert some information such as, username, password, and email for the verification process later. After that, users can start creating their assignment due, and then they can set when they want to be reminded, it can be a couple days earlier or it could be a week early. Using this application will be able to assist students in completing all their assignments ontime.

Keywords: remembering, due, assignment, ontime.

INTRODUCTION

This project is specifically designed for students at Polytechnic and College Community (POLYCC) to provide them with an efficient and reliable solution to manage their academic schedules and deadlines. With a simple yet fully functional user interface, iStudent@POLYCC will be easy to use even by a first-time user.

PROBLEM STATEMENT

As a student, it can be a challenge to keep managing multiple assignments at once. With the increasing number of subject and with involving to other co-curricular activities, students often struggle to keep track of their ongoing assignment that are nearing deadlines. This can lead to missed assignments, lower grades, and study environment became more stressful.

Moreover, the traditional paper-based timetable systems may not be suitable for all students nowadays, especially for those who require flexibility in their schedules and to have their timetable often changes. This can create confusion and be overlooked, leading to poor time management, and ending up failing the subject.

OBJECTIVE

Objective for this final year project is so user can use iStudent@POLYCC as a companion that will remind them about their ongoing assignment so that they can be more prepared into completing that assignment with full effort and time to perfecting it. Moreover, this can lead to improving students' academic achievement with a full mark assignment and so they can keep learning in a non-stressful learning environment because they are prepared with proper time management.

MATERIALS AND METHODS

Fig. 1: Methodology

We choose Agile method for our project because of the flexibility and adaptability toward the process. Our development team can react fast changing needs or feedback from student thanks to the agile methodology's high degree of flexibility and adaptability. Furthermore, the development team may get input from students or teachers as the project moves forward that could assist to enhance the app's functionality and usability. These adjustments can be smoothly incorporated into the development process thanks to agile methods.

Materials

1. Java programming language
2. Android Studio (as a software development tools)
3. Smartphone or tablet device (Android operating system)
4. Internet connection (for initial download and periodic updates)
5. iStudent@POLYCC mobile application (available for free download on Google Play Store)

Methods

1. Download and install the iStudent@POLYCC mobile application from the Google Play Store on your smartphone or tablet device.
2. Once installed, open the application and create an account by providing necessary information such as name, matrix number, email address, and password.
3. Fill out your subject schedule by inputting the subjects you are taking for the current semester or term.
4. Utilize the integrated student calendar to keep track of important dates and deadlines related to your studies, including exam dates, assignment due dates, class schedules, and personal commitments.
5. Regularly update and review your calendar to ensure you are prepared for upcoming events and avoid missing important deadlines.
6. Use the due date notice and "assignment submitted" functions to keep track of your assignments and avoid any delay in their delivery.
7. Take advantage of the app's features to manage your time effectively and achieve excellent results in your studies.

EXPECTED RESULTS AND DISCUSSION

Expected Result:

The iStudent@POLYCC mobile application is expected to provide students with an effective tool to help them manage their time and stay organised in their studies. It can help students keep track of their schedules, deadlines, and important dates related to their academic commitments. The integrated student calendar can serve as a guide for students to balance their academic and personal responsibilities.

The mobile application is also expected to provide an easy way for students to monitor and manage their assignments. With the due date notice and "assignment submitted" function, students can stay on top of their assignments and avoid missing important deadlines. The application's free release on the Google Play Store makes it easily accessible to students.

Discussion:

The iStudent@POLYCC mobile app is made to give students a useful tool to aid in time management and enhance their academic achievement. Students can effectively manage their academic and personal commitments thanks to the application's focus on scheduling the student's daily activities and giving them a clear picture of their obligations.

The integrated student calendar, one of the application's special features, can assist students in staying on top of their academics and avoiding missing crucial deadlines. Students can make sure they are ready for forthcoming events and have an awareness of their responsibilities by frequently updating and reviewing their calendar.

The application's "assignment submitted" feature and due date alert can assist students in keeping track of their assignments and avoiding late submission.

CONCLUSIONS

For the conclusion of this extended abstract, we hope that iStudent@POLYCC can bacome a useful mobile application designed to help students at Polytechnic and College Community (POLYCC) managing their academic schedules and assignments effectively. With its user-friendly interface and reliable notifications, the app can help students stay organized and on track with their academic work, reducing stress and improving overall academic performance.

By setting clear objectives and using iStudent@POLYCC consistently, students can take advantage of the app's features to ensure that they never miss an assignment deadline again. Overall, iStudent@POLYCC has the potential to be a valuable tool for students who want to optimize their academic success and streamline their schedules.

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PUO DONATION WEBSITE

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ABSTRACT

PUO Donation portal is a website to facilitate the collection of donations to help students PUO and staff PUO. The donation will be collected if there are any accidents, death, tragedy, misfortune, or natural disaster that befall our students and staff in PUO. Before this, we collect the donations by posting a poster on social media. It may cause donors hesitant to donate because of less detailed information. The objective of this website is to make the donation process easier, let people know all donations that are available and educate and give awareness to people about why those donations matter. This website will be developed using agile methodology, HTML, CSS, JavaScript, and PHP. The system will require 3 users: developer, admin, and end user. The donators only need to register their information and contribute their donation to the people in need by using only this website. Therefore, people can easily make donations anytime and anywhere to help students or staffs PUO without worrying that their donation will end up in the wrong place.

Keywords: donation, donors, online website.

INTRODUCTION

This website was built to facilitate the collection of donations to help students and staff in Ungku Omar Polytechnic (PUO). The donation will be collected if there are any accidents, death, tragedy, misfortune, or natural disaster that befall our students and staff in PUO. With the creation of this website, the donors can easily contribute from anywhere in the world, at any time of day. They only need to register their information and contribute their donation to the people in need by using only this website.

PROBLEM STATEMENT

The absence of comprehensive information and the inadequacy in disclosing the goals, strategies, and impact of the campaign pose significant challenges for the organisation in its endeavours to attract potential donors. The sheer number of campaigns hosted on the organisation's website exacerbates the difficulty in determining the total donation amount collected. This lack of transparency and centralised tracking system makes it arduous for both the organisation and donors to effectively monitor and assess the progress and success of individual campaigns. Furthermore, the unavailability of a detailed transaction history impedes donors' ability to stay informed about their contribution records, which is pivotal for evaluating whether the campaign goals have been accomplished.

OBJECTIVE

The primary objective of the donation system is to create a user-friendly platform that enables campaign managers to showcase their campaigns with complete and detailed information. This information can include the campaign's goals, target audience, fundraising milestones, and progress updates. Additionally, the system aims to facilitate the efficient and accurate tracking of donations by enabling administrators to determine the total amount of donations received for each campaign. This feature provides campaign managers with valuable insights into their fundraising efforts, allowing them to adjust their strategies as needed to achieve their goals. Furthermore, the donation system prioritises the needs and experiences of donors by offering a transparent and user-friendly interface that allows them to view their donation history at any time. Donors can easily track their contributions to various campaigns, monitor the progress of their donations, and receive regular updates on the impact of their contributions. This feature promotes trust and accountability between donors and campaign managers, fostering a culture of giving and creating positive social change.

MATERIALS AND METHODS

We have decided to use agile method to develop our website, as its enable us to deliver a user-friendly and effective platform to our donors and campaign managers.
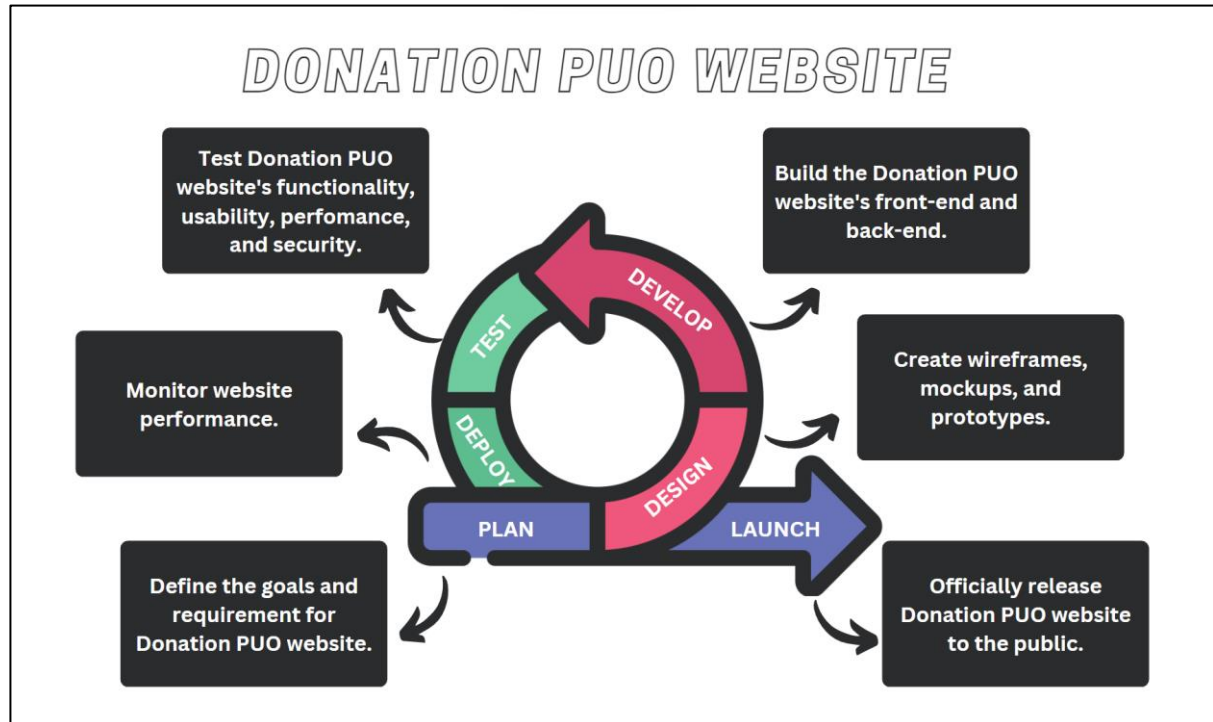
Fig. 1: Methodology

EXPECTED RESULTS AND DISCUSSION

Fig. 2: interface's design

CONCLUSIONS

In conclusion, the proposed donation system intends to address the organisation's issues in recruiting potential donors and properly monitoring the development and success of campaigns. It aims to provide a transparent and user-friendly platform that enables campaign managers to showcase their campaigns with complete information and facilitates the efficient tracking of donations. The system prioritises the needs and experiences of donors by providing a transparent and user-friendly interface that allows them to view their donation history and receive regular updates on the impact of their contributions. The system seeks to maximise the impact of charitable contributions and create positive social change while promoting a culture of giving.

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CAREERLY - JOB TRAINING GAMIFICATION

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ABSTRACT

Careerly – Job Training Gamification is a gamified web application that assists in the recruitment, engagement, and training of future workers as it is one of the most important and crucial jobs in successfully operating an organization. The aim of it is to guide users especially in a perspective of the interviewing process, which involves resume submissions, suitable clothes and posture, common and high-level questions and answers, and other things. The methodologies applied in our gamified application will be the combination of Gamification and eLearning methodologies with the use of game metaphor, game elements, achievement leaderboard, and the use of delivered electronically. As the job market is competitive, having ideal employees is crucial for every company or organization. With the tough competitors, getting flawless all-round is essential. Since technical ability alone is not enough, having solid basic knowledge will secure a place in recruitment. Through the creation of perfect all-round employees, it will increase the positive, growing, and healthy changes to the organization and not to forget, to the user itself.

Keywords: Job Training Gamification, interview, resume, eLearning.

INTRODUCTION

In order to increase user engagement, an increasing number of software applications now use game design or game theory. It's referred to as "gamification." With a variety of uses and characteristics, it has been used in the military, business, education, and other fields. Because of this, the idea of combining gamification and education was developed.

The aim of this project is to produce, train, and retain perfect all-around personnel with guidelines from the early phases of developing perfect candidates until they grow perfect. We provide a gamified web application that helps with future employee recruiting, engagement, and training. It is specifically targeted at the interview process, which includes drafting a Resume, suitable clothes and posture, a question, and answers session.

To achieve that, we prepare a lot of development processes with the help of software such as Ren'Py and languages like Javascript, HTML and CSS.

PROBLEM STATEMENT

According to the Malaysian Department of Statistics, the number of jobless people in November 2022 decreased by 0.2%, or 1.1 thousand people, to 600.9 thousand people (October 2022: 602.0 thousand people), with the unemployment rate remaining at 3.6%.

This proves that joining the workforce today is very difficult, especially considering the fierce competition for jobs. One of the main factors contributing to the difficulty of finding a job is the lack of interview preparation. This will make the candidates become unprofessional with their interview session, which can lead candidates to undersell their expertise and experience. The most sought-after applicants by all companies are those who have experience and are well-prepared. An early preparation will catch the attention and a good first impression.

But there's another issue that has spread throughout most companies. Wherein, the company only wants candidates that have prior experience and are well-prepared. This will bring trouble to the fresh graduates with very limited experience. Hence, assisting prospective employees in finding employment is the concern here. The company often rejects unprofessional resumes which is why writing a resume in the current format comes first because it is the most crucial. Employers evaluate their initial impression of a candidate on their appearance and posture during the interview. They can pass it if they adhere to proper criteria for physical posture and attire.

The Question-and-Answer session is what scares candidates the most. Unexpected inquiries can often catch candidates off guard and eliminate them from consideration for employment. With unprepare-self, the question that out-of-box might give.

them trouble to answer it. That can prove how unprofessional they are. So, by carrying out this project, it can aid their preparedness and professionalism in job recruiting.

OBJECTIVE

The overall goal is to run a gamified web application to produce, train, and retain ideal all-around employees, as well as how it may assist with the problem statements. The following are the main goals of this project:

- Ensures candidates are well prepared and confident for their interview preparation.
- Candidates' resumes are professional, concise, and well written.
- Applicants are proficient at responding to unexpected queries.

MATERIALS AND METHODS

Agile Method

Fig. 1: *Agile Method*

We are using an agile method for our job training gamification project (CAREERLY) - so first, we identify the requirement and analysis which is the target audience, analyse their learning needs and expectations. Next, we continue designing the game mechanics after figuring out and analysing the project's requirements. Then, we conclude the design and materials where we can add value to the gamification after surveying the game material. After that, inspect the review progress we have made where we identify the areas of improvement and feedback review. Other than that, we are going to use the feedback to optimise the process for the next sprint to conduct a retrospective to evaluate the accomplishments of the group and discover areas for development. Lastly, the execution of the project and up until all the learning objectives are met also repeat all the process.

EXPECTED RESULTS AND DISCUSSION

Our project is expected to be a web application that has these features:
- Gamified Interview Questions for users to learn in a fun way,
- Mini Informative Games which let user gain information while playing,
- Biodata (Profile) generating in a short amount of time.
- Resume Improving with AI to enhance resumes.
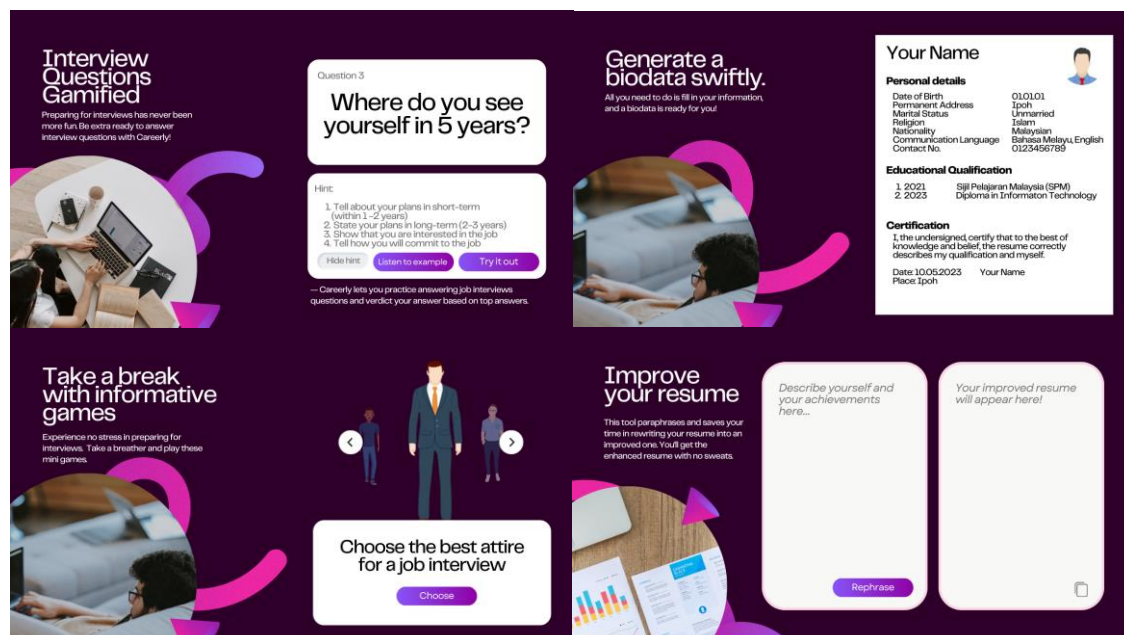
Fig. 2: Proposed UI/UX Design

CONCLUSIONS

In conclusion, gamification may be a beneficial tool for job training since it delivers an exciting and dynamic learning experience that can assist job seekers in improving their interview skills, resume writing, attire selecting, and body posture. Job training programmes that incorporate game features such as points, badges, and leaderboards can drive learners to participate more actively and effectively in the training process, resulting in better outcomes. Furthermore, gamification may imitate real-world events, allowing learners to practise and develop their abilities in a low-risk environment. Overall, job training gamification has the potential to improve the efficacy and efficiency of job training programmes, hence assisting job seekers in increasing their employability and landing their desired positions.

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JTMK INFORMATION APPLICATION

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ABSTRACT

Introducing the JTMK PUO Information mobile application - a revolutionary project designed to transform the way students and staff interact with the JTMK department's facilities and resources. With its sleek and intuitive interface, users can effortlessly access information on departmental resources such as labs and lecture halls, explore course offerings tailored to each track, and stay updated on the latest news and achievements within the department. In addition to providing information on departmental resources and news, the mobile application will also promote better communication and collaboration between students and staff. Students can quickly locate their classes and find their lecturers' location, leading to improved interaction and collaboration. Overall, the JTMK PUO Information mobile application is an innovative solution to address the challenges faced by students and staff in accessing information and resources in the JTMK department. This project has the potential to significantly enhance the department's efficiency and productivity, ultimately resulting in improved academic outcomes for students.

Keywords: efficient platform, user-friendly interface, communication, departmental news and accomplishments.

INTRODUCTION

The JTMK department is a bustling hub of academic excellence, where students and staff come together to explore the frontiers of knowledge and forge a brighter future. But with a vast array of facilities and resources spread across the department, it can be challenging for students and staff to stay connected and up to date with the latest information. JTMK Information Application a groundbreaking project designed to revolutionize the way students and staff interact with the department's resources. With its intuitive and user-friendly interface, the JTMK Information Application will provide students and staff with easy access to information on departmental facilities such as labs and lecture halls, course offerings for each track, and the latest news and achievements within the department. But the JTMK Information Application is more than just a tool for accessing information - it is a catalyst for collaboration and community within the JTMK department. By promoting improved communication and interaction between students and staff, this innovative solution will spark new ideas and unlock the full potential of our academic community.

PROBLEM STATEMENT

The JTMK department currently lacks a mobile application that provides easy access to general information for both staff and students. This presents a challenge for individuals who require information on the department's facilities, resources, and course offerings. In addition, students face difficulties in locating their classrooms, laboratories, or halls, particularly during their first semester. This problem is further compounded by the fact that the list of staff at a particular location is only posted on the doors of that location, making it challenging for students to locate their lecturers' offices when they need to meet them.

OBJECTIVE

JTMK apps that we will develop to allow staff and students to easily access general information about the department. For example, department staff can do and give a few short messages through these apps that will be sent to students. Then students can be alerted about things or information about programs that will be implemented according to the set time. Next, this app can help students find their classrooms, laboratories or halls using simple directions through the mobile application. This is because we will include and create some facilities for students to make it easier for them. Even students do not have to worry about being late to class, especially for students who have just entered the institution. Next, not only that, but we also provide an easier way for students to find and meet their lecturers through the mobile application. We will create a design that will show and tell where the lecturer's room is. This will make it easier for students to find and find out the whereabouts of their lecturers quickly, especially when students are urgent to meet with their lecturers.

MATERIALS AND METHODS

Materials

Android Studio
SQLite

Methods
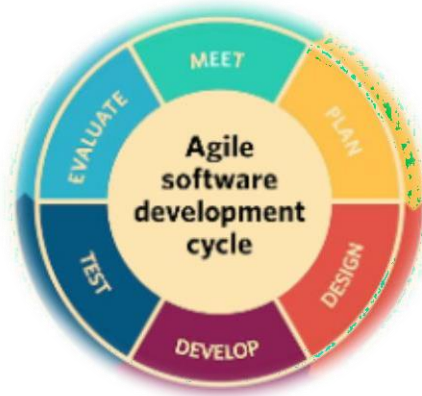
Fig. 1: Agile Methodology Diagram

EXPECTED RESULTS AND DISCUSSION

JTMK apps developed have affected the problems that arise for students and JTMK staff.

The effectiveness of these apps will be monitored and scrutinized from the positive impact by students and JTMK staff.

CONCLUSIONS

Information on the lab and departmental facilities, including the lecture hall and classes, is available to both students and employees. Any general information about an event or competition hosted by the Department of Information and Communications Technology as well as news concerning Ungku Omar polytechnic will be announced there as well.

ACKNOWLEDGEMENTS

The Department of Information and Communication Technology at Ungku Omar Polytechnic has been a tremendous help to the authors in carrying out this study, and they really appreciate it. The research subjects are also to be thanked by the authorsfor their cooperation and important contribution to this study. The authors would especially like to thank Mr. Hairil Izwan from CompTia for his advice and Internet of Things (IoT) knowledge. A bunch of dedicated respect to Puan Zalinda binti Ibrahim as the authors' supervisor that help throughout the preparation of this study.

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JTMK STAFF TRAINING INFORMATION SYSTEM

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ABSTRACT

A web application called "JTMK Staff Training Information System" will be created to hold information on the training of JTMK employees. JTMK Staff Training Information System is often handled in a manual system in higher education institutions, which means it has been kept inside a cabinet inside an office. The manual procedure will be time-consuming and impede JTMK's advancement since staff members who take the necessary courses cannot assess whether they fully understand the information being provided. The Staff Training Information System records management system software has been developed in this study to monitor and record attendance of previously established courses, allowing staff to keep track of which courses should be attended and guiding the admin to have access to the records of the courses previously attended by the staff, ensuring that staff members attend the course with a set quota and reducing their stress by returning and finding other staff to attend.

Keywords: Project, Records, Staff, Admin

INTRODUCTION

JTMK Staff Training Information System" is a web application that will be developed to store data about JTMK staff's training. This project will improve the efficiency of storing training data that have been attend by all JTMK's staff in Polytechnic Ungku Omar. This project will be an alternative of the old inefficient method that requires staff to record their attendance manually, besides that they also need a system that allows them to refer to the training they have attended.

PROBLEM STATEMENT

JTMK Staff's engagement of training information attended by staff in the department is recorded manually. This situation makes it difficult for Staff Training Coordinator to systematically manage information related to staff training. Because there is no mechanism in the department to maintain such information, it is challenging for workers to check the training modules they have taken. Reports related to the training attended by staff will take time to be prepared as they are done manually.

OBJECTIVE

Staff Training Information System is a source that offers solutions for staff who attend courses that have been set annually to complete their tasks. Likewise, it is a key entry point to know information about training that can be recorded & managed efficiently using web applications. Since JTMK Staff Training Information System can be used as a digital Dropbox, it's ideal for staff who want to access information about their courses, communicate with admins, and even make updates about their course attendance. Furthermore, Staff can check attended training from time to time easily using a web application. It can also lessen the effort spent creating attendance reports for evaluations, shift scheduling, leave tracking and many other aspects of attendance monitoring. JTMK Staff Training Information System is individual training or overall reports can be easily generated. Employee training programs help improve the knowledge and skills of employees to match the various changes in the industry. When an organization's employee performance appraisals suggest the need for improvement on a particular subject or skill, training programs can be organized for staff members to help satisfy this requirement.

MATERIALS AND METHODS

Materials

Visual Studio / HTML / MySQL / Java

Methods

- *Process indicators* measure performance or key processes- They track such things as the number of employees trained, the number of training courses completed, or the number of hours employees spent in training.

- *Outcome indicators* contain measures of service or performance results. This measures factors such as improved organizational effectiveness or a rise in personnel satisfaction about course attendance. They may call for extended

course attendance measurement periods, various methods of assessment, including staff and administrative feedback, training effect measurements, course attendance analysis, performance sampling, and return of course attendance analysis.

EXPECTED RESULTS AND DISCUSSION

One of the project's outcomes is an easy web application interface that allows users (admin and JTMK workers) to monitor training attendance on a regular basis. The online application will also give information about training to the participating people so that it may be readily recorded and maintained. The user will be able to obtain personalized training as well as final reports through the interface, which will be generated for them as needed. Overall, the goal of a lecture training information system is to encourage lecturers to easily check their training report, as well as to have the skills andknowledge required to provide high-quality teaching that meets the needs of students, as well as to provide a framework forongoing development in teaching practices.

CONCLUSIONS

The process of recording and managing staff information about training was improved through the formation of JTMK Staff Training Information system. Hence, it is primarily helpful to help the coordinator generate overall reports of individual training and allows staff to check attended training from time to time.

ACKNOWLEDGEMENTS

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DDT ODYSSEY GAME

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ABSTRACT

DDT Odyssey Game is developed to take players on a journey through the exciting world of Diploma in Digital Technology because it is an educational exploration game about DDT. It can help players, especially students that want to further study in Polytechnic and Community College (PolyCC) gain information about DDT structure before going through it. Furthermore, in DDT Odyssey Game, players will embark on an adventure that explores basic DDT information through a series of mini-games. Players will learn important skills such as problem-solving, observing, and decision-making while having fun exploring new concepts and information. DDT Odyssey Game will encourage players to explore the games where it contains a variety of minigames such as Quizzes and Fun Facts about DDT Program. Players will also receive feedback on their performance. This game is great to develop because the traditional way of sharing information can be boring or uninteresting, especially for students or users who have difficulty receiving information when it is presented in a traditional manner. Therefore, this game is developed to use as a learning platform and makes learning enjoyable in the world of DDT education. The method that we use to develop this game is Object-Oriented Analysis and Design (OOAD) Method. As a result, we expect that this game will be launched either at Google Play Store or website. To sum it up, DDT Odyssey Game gives the best benefits to users and is helpful mainly for the PolyCC community.

Keywords: exploration, game, educational.

INTRODUCTION

DDT Odyssey Game is an educational exploration game that takes players on a journey through the exciting world of Diploma in Digital Technology. In DDT Odyssey Game, players will embark on an adventure that explores basic DDT information through a series of mini games. Players will learn important skills such as problem-solving, observing, and decision-making while having fun exploring new concepts and information. As players progress through the game, they will encounter different challenges and puzzles that will test their DDT program knowledge. DDT Odyssey Game will encourage players to explore the games where it contains a variety of minigames such as Quizzes and Fun Facts about DDT Program. Players will also receive feedback on their performance.

PROBLEM STATEMENT

The traditional way of sharing information can be boring or uninteresting, especially for students or users who have difficulty receiving information when it is presented in a traditional manner. Furthermore, in institutions, sharing of information is often planned at specific times and places, which does not provide much flexibility for students to learn at their own pace. Moreover, the traditional way of sharing information may involve a lot of reading processes that can become a passive activity that does not allow interaction with the information. Because of this, we create games which can offer students or users information in an enjoyable way.

OBJECTIVE

The goal of this project is to develop the DDT Odyssey Game, a game that is used as a learning platform and makes learning enjoyable. In order for players to interact with the game and learn from it, it was designed to include a variety of mini games in the world of DDT education. Additionally, testing a game with mini games that include DDT structures is the goal of this game.

MATERIALS AND METHODS
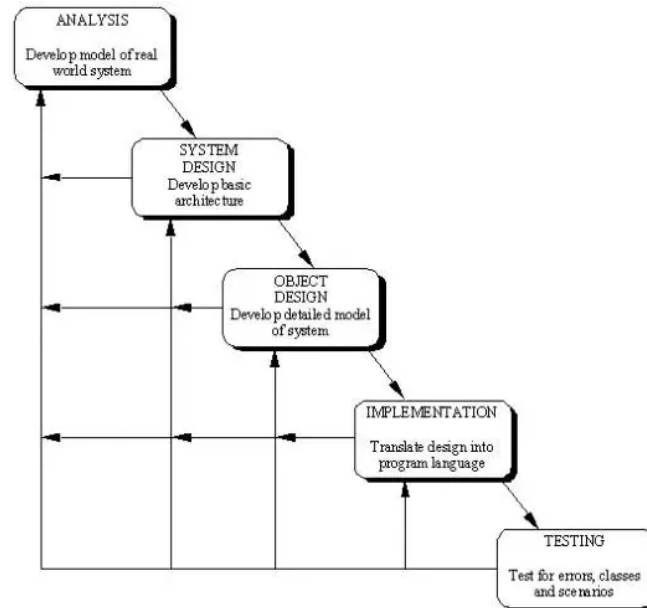
Figure 1: Object-Oriented Analysis and Design (OOAD) Method

Figure 3: Unity Software

Figure 2: Aseprite Software

Materials
The tools used to develop this game are Unity software, Aseprite and a laptop.

Methods
Object-Oriented Analysis and Design (OOAD) Method

DDT Odyssey Games is a development project that involves several phases: analysis, system design, object design, implementation, and testing. During the analysis phase, stakeholders' requirements are gathered to define the project's scope, objectives, features, and constraints. A use case diagram and domain model are created to outline the game's functionalities and user interactions and entities and their relationships in the game. In the system design phase, the architecture, including software components, interfaces, and deployment environment, is designed. A system sequence diagram and data model are developed to describe interactions between the system components and the user, and the game's state and progress tracking.

In the object design phase, the main game objects and their attributes and behaviors are identified, and the object model, including inheritance hierarchy, associations, and dependencies, is designed, with class diagrams illustrating the model and their relationships. The implementation phase involves coding the game's components, integrating them, developing the graphical u s e r interface, and backend logic, which includes game mechanics and data management.

Finally, during the testing phase, a test plan and test cases are created and executed to ensure the game's functionality and

performance. Automated testing tools are also used to test the game's quality and robustness.

EXPECTED RESULTS AND DISCUSSION

It is aimed that the game will be launched either at Google Play Store or website.

CONCLUSIONS

In conclusion, DDT Odyssey Game, which is this project, is very useful for people, especially for Polytechnic and Community College (PolyCC) community to know more about Diploma in Digital Technology structure. In the same way, DDT Odyssey Game can help students who want to further study in Information Technology. Therefore, they can gain information about DDT structure before going through it. In addition, this game is user friendly so that users can understand and play it easily. Finally, we hope that this game gives the best benefits to users and is helpful mainly for PolyCC community.

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FOOD EXPIRY REMINDER

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ABSTRACT

The Food Expiry Reminder is an application that will intelligently alert users when food is getting close to expiration. It functions as a food expiration date monitor to cut down on food waste. Users can manage and keep track of the food expiration date with the help of the application, Food Expiry Reminder functionality. The mobile application will be developed using the OCR (Optical character recognition) and Android Studio Version Electric Eel. Food Expiry Reminder has only two types of users which are system and end users. System will monitor the status of the user and groceries. End users will be able to input the products' details. The apps will be used by users to set reminders and check on the status of the product. A significant contribution is to help every buyer to track their groceries' expiration date. It is planned that Google Play Store users can download Food Expiry Reminder for free. The unique feature of Food Expiry Reminder is to successfully remind customers of the expiration dates of their groceries and ensure that the food is still edible and has not yet passed its expiration date. As a result, the user will be more convenient and will save money.

Keywords: food expiration date, keep track, reminders.

INTRODUCTION

The application was developed to assist users in keeping track of the expiration dates of their food supplies and to instantly alert users when those dates are drawing near. By using Food Expiry Reminder, users can make wise choices about what to buy and when to consume it, preventing food waste and saving money. But that's not all; the app also provides tools to support users in controlling their grocery spending. Users can choose where to shop and which items to buy to save money by keeping track of prices across various stores and keeping an eye on their spending. Overall, the Food Expiry Reminder app is a useful resource for anyone trying to cut down on food waste and better manage their grocery budget. This app can assist users in saving money, lowering their environmental impact, and assisting in the development of a more sustainable food system by sending out timely reminders, keeping track of expiration dates, and keeping an eye on prices.

PROBLEM STATEMENT

For many users, remembering when food expires can be a challenging task. It can be difficult to tell if a food product is still safe to eat because it is simple to forget when it was purchased. Users frequently purchase more food than they actually need as a result, which frequently leads to unnecessary waste. This problem can be solved by creating a mobile application that alerts users to the approaching expiration dates of their food. Users can easily manage their food items and stop food from going bad by using the list and convenient interface that is provided. In addition to lowering food waste, this also helps users save money. The application can improve the user's daily life and encourage a sustainable lifestyle by addressing this issue.

OBJECTIVE

The goal of developing this integrated project is to help users keep track of food expiry dates, which would be a useful tool for those who want to avoid wasting food. This application is developed to notify the user when their food expiry is near and provide an interface and list to remind them what and when they bought these items. With this application, users could easily and conveniently manage their food to prevent food expiration, reduce food waste, and save money.

MATERIALS AND METHODS

Materials
Android Studio
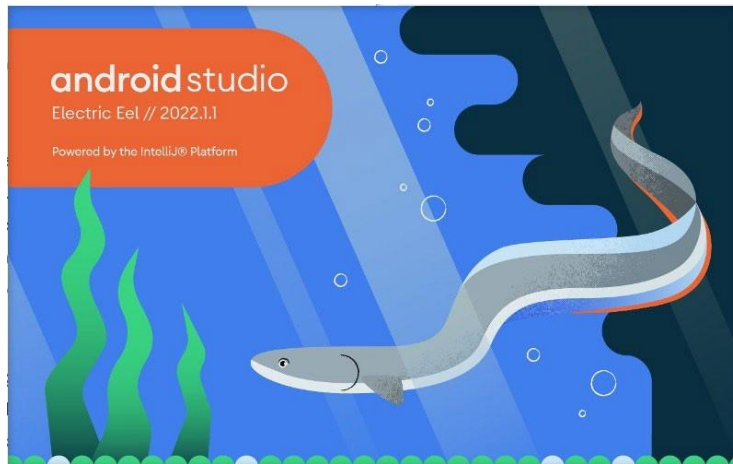
Fig. 1: Android Studio version Electric Eel

Methods
Rapid Application Development Methodology
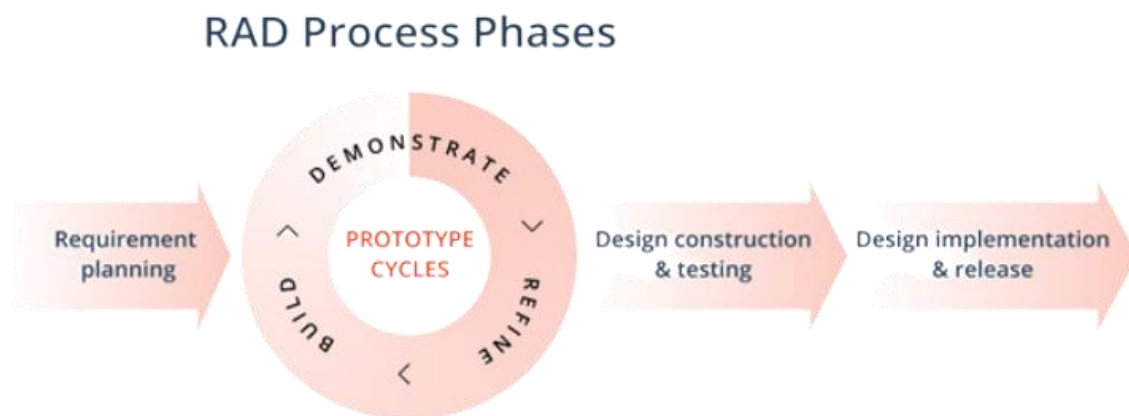
Fig. 2: Rapid Application Development (RAD) Methodology

Planning requirements, creating prototypes, testing designs, implementing designs, and releasing designs are all steps in the development of a software system. Users, managers, and developers work together to determine the business needs, project scope, and system requirements during the requirement planning phase. The development team then moves on to the prototype cycles phase, where they engage with users while creating models and prototypes. These models are built continuously, allowing users and developers to collaborate, make improvements, and approve the final product.

Design construction and testing is the following phase, where actual programming, application development and testing occurs. The users provide feedback to the development team, which uses it to refine and enhance the software. Making sure the software complies with all established requirements is the focus of this phase, which is also more heavily weighted towards testing and programming.

Finally, during the design, implementation, and release phase, the new system is constructed in accordance with all specifications and put through extensive testing. After data conversion, the system is made available to the user base. The entire development process is iterative and involves constant user feedback as well as team refinement.

As RAD process focus is preferred over big planning as due to less shorter planning phase it can focus on highly iterative design. It allows users to provide input speedily and focus on continuous development. This helps the team to accomplish more in a shorter duration and It also helps user attention and satisfaction.

EXPECTED RESULTS AND DISCUSSION

It is planned that Google Play Store users can download Food Expiry Reminder for free.

CONCLUSIONS

In conclusion, the Food Expiry Reminder application is a user-friendly tool that helps individuals reduce food waste, save money, and manage their grocery inventory effectively. By providing timely reminders of food expiration dates and tracking grocery costs, the application empowers users to make informed decisions about their food consumption and purchasing habits. This innovative solution not only saves money for users but also contributes to a more sustainable food system, making it a valuable tool for anyone looking to manage their food inventory and grocery expenses more effectively.

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REALM OF KNOWLEDGE

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ABSTRACT

Education through games is considered powerful tools for learning. Although users find 3D games to be more interesting than 1D and 2D games, there are currently few 3D educational games accessible. This might be difficult for educators who wish to use technology to enhance learning and make it more interesting for students. Despite the advantages of 3D technology, more educational games that make use of this format and are especially made to serve learning objectives are still needed. The aim of this project is to develop a 3D game with a quiz-based system. The scope of our project is focused on the students of Polytechnic Ungku Omar. By incorporating fun and education, we hope that players can retain knowledge and improve academic performance. The importance of engaging educational games is highlighted, and the potential to fill a gap in the industry is discussed. Overall, this report offers a solution to address the issue while providing an exciting and interactive experience.

Keywords: education, engagement, 3D first-person game, quiz-based system, immersive environments, critical thinking, academic performance.

INTRODUCTION

The current education system often struggles to engage students and promote academic success. Educational games have the potential to address this problem by providing an interactive and engaging learning experience. Our 3D first-person game with a quiz-based system aims to provide an immersive and thrilling learning experience that promotes critical thinking and creativity. This report will detail the development process and potential impact of our game on student engagement and academic performance.

PROBLEM STATEMENT

Students' involvement in the learning process through technology engagement faces several difficulties. One of the main challenges is that traditional teaching techniques, including lectures and readings, are sometimes non-interactive and can result in students losing interest and not participating as much. Finding games that are appropriate for educational reasons can also be challenging because not all games are created with learning objectives in mind. Another difficulty is the lack of accessibility of 3D games for educational purposes, even though they are typically more engaging than 1D and 2D games. In order to effectively engage students and encourage successful learning outcomes, there is a need for more interactive and innovative approaches to education that make use of technology, such as games.

OBJECTIVE

The objective of our project is to develop a 3D first-person game with a quiz-based system that provides an interactive and exciting learning experience for players, particularly students. The game will be developed using Unity engine and feature a variety of environments and challenges that the player must overcome to succeed. Our goal is to incorporate a total of 10 quiz items spread throughout the game world to test players' knowledge on Information Technology. By creating an engaging and fun game, we aim to address the problem of lack of engagement in traditional education systems and provide an innovative and entertaining learning experience. We will work with a team of experienced game developers to ensure the game is appealing to both students and gamers alike.

MATERIALS AND METHODS

I. Conceptualization: Game concept and storyline developed by the team, which included game designers, programmers, and subject matter experts.

II. Game Engine and Tools: Unity game engine and various tools used for game asset creation including Blender and Photoshop. Game Mechanics: Intuitive player movement and object interaction designed for easy learning.

III. Quiz-based System: Engaging quiz-based system integrated with game mechanics for a fun learning experience.

IV. 3D Environments and Puzzles: Immersive environments and challenging puzzles requiring critical thinking and problem- solving skills.

V. Playtesting and Feedback: Game play tested by diverse group for feedback on gameplay, difficulty, and educational value.
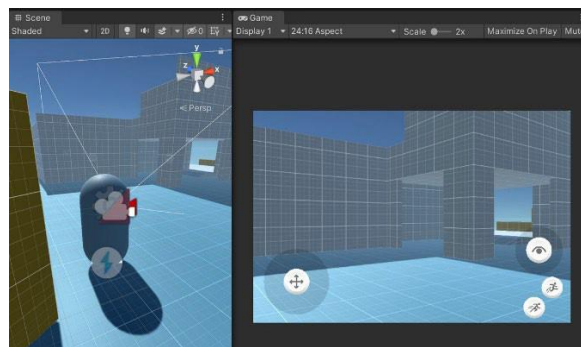
Figure 1: First person walking mechanism with small environment [1]
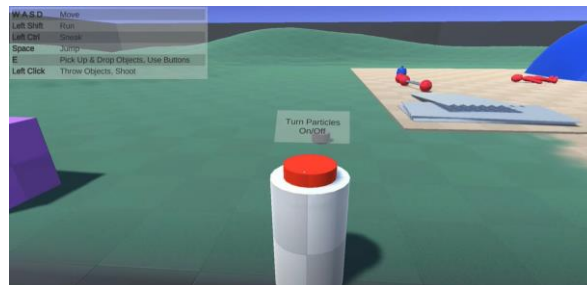
Figure 2: Player interaction with some objects in game environment to trigger quiz
[2]

Table 1: Game loop overview

Stage	Description
1. Player Movement [1]	The player moves around the game environment, exploring and interacting with objects.
2. Object Interaction [2]	The player interacts with specific objects in the game environment that trigger quizzes.
3. Quiz Gameplay	The player answers quiz questions, using their knowledge to solve puzzles and overcome obstacles.
4. Quiz Completion	After completing the quiz, the player progresses to another section of the game world, such as a different room.
5. Loop Restart	The game loop restarts, with the player moving around the new section of the world and interacting with objects to trigger new quizzes.

EXPECTED RESULTS AND DISCUSSION

I. Increased engagement and retention of knowledge in players through the use of a 3D first-person game with a quiz-based system.
II. Development of critical thinking and problem-solving skills in players through challenging puzzles and immersive environments.
III. Playtesting and feedback from a diverse group to improve the game and ensure it meets educational standards.
IV. A fun and interactive learning experience that promotes a love of learning and improves academic performance as the expected output of the game.

CONCLUSION

In conclusion, the 3D first-person educational game with a quiz-based system, challenging puzzles, and immersive environments has the potential to improve engagement, retention, and critical thinking skills in players. The integration of playtesting and feedback ensures that the game meets educational standards and provides an enjoyable learning experience.

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PUO E-mart

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ABSTRACT

PUO E-mart – Now buying goods online is no stranger to consumers. It is very helpful for users who cannot make purchases directly at the store due to various situations. The ungku omar polytechnic cooperative retail store sells a variety of items needed by polytechnic students and students in college in general, but it does not provide online purchase of items. The project to be developed is to provide a website that has an online purchase service for the Ungku Omar Polytechnic cooperative grocery store. It will be developed using laravel software and programming language php, html and sql. It is hoped that the development of this project can facilitate students in purchasing goods at cooperative retail stores.

Keywords: retail, online purchase, online grocery.

INTRODUCTION

Puo e-mart is a website that will make it easier for Politeknik Ungku Omar students to buy necessities online. This website will be a good initiative for cooperative that only sell goods face-to-face with customer because this website will not only solve the problem of students going to cooperative and queuing to buy things but also gives students awareness about the goods sold in cooperatives.

PROBLEM STATEMENT

A cooperative that does not provide online services for Politeknik Ungku Omar students to buy necessities online. Existing cooperatives do not provide online sales of student necessities such as toiletries and stationery. If a cooperative does not provide online services for students and instead requires them to physically visit the cooperative to ensure the availability of necessary items, students will have to allocate time and make the effort to go to the cooperative's physical location. Students must wait in long queues to pay for items purchased at the cooperative if cooperative does not provide online services. The time spent waiting in queues can be seen as unproductive time for students. It takes away from their ability to engage in other activities such as studying, completing assignments, or participating in extracurricular pursuits.

OBJECTIVE

Start by understanding the goals and objectives of Koperasi PUO's website. Determine the target audience, desired features and functionality, and any specific requirements or constraints. Develop a visually appealing and consistent design that aligns with Koperasi PUO's branding and identity. Choose a colour scheme, typography, and imagery that reflect the cooperative's values and purpose. Develop a comprehensive product catalog that showcases the goods available for purchase. Include product descriptions, images, pricing, and any other relevant details. Implement an inventory management system to track product availability and ensure accurate stock levels. Ensure that all the features and functionalities of the website are working correctly. Test the registration process, login functionality, browsing and searching for products, adding items to the cart, and completing the checkout process. Verify that the website behaves as expected and that all user interactions are functioning properly.

MATERIALS AND METHODS

PUO e-mart is a website, which means that it is primarily made using digital materials and tools like Laravel or Visual Studio Code. Some of the materials used to create a website include programming languages such as HTML, PHP, and JavaScript, which are used to create the website's layout, design, and functionality. Other materials that may be used in the creation of PUO e-mart include graphics and images, which may be created using software like Adobe Photoshop or obtained from stock image websites. Additionally, the website may require a database to store and manage product information and customer data, which can be created using software such as MySQL or Oracle. The website may also use various software tools for prototyping, testing, and implementation.
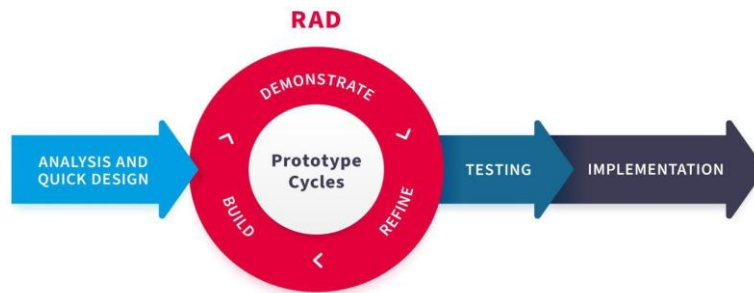
Fig. 1: RAD Diagram

EXPECTED RESULTS AND DISCUSSION

The website that will be developed later will display all the products sold in the cooperative, students can make purchases online and then choose to pick them up at the cooperative or use the service delivery. Students who want to use this system must register as users and students can also register as food delivery people who will receive wages. The cooperative can add, update and delete products on the website and receive orders from students. It is hoped that the development of this project can help to facilitate the purchase of goods needed by Politeknik Ungku Omar students who have not been paid.

CONCLUSIONS

In conclusion, PUO e-mart is a website designed to solve the problem of students having to physically visit the cooperative to purchase necessary items. By allowing online purchases, the website provides a convenient and time-saving solution for students. The project's objectives include designing and developing a website for Koperasi PUO, expanding the market, increasing sales, and testing the website for students. The website is expected to display all the cooperative's items with their prices and allow students to make purchases and payments online. The project will use the waterfall model and include various digital materials and tools such as programming languages, graphics, databases, and software for testing and deployment. Overall, PUO e-mart is a promising initiative that aims to make shopping easier and more accessible for students.

ACKNOWLEDGEMENTS

I would like to express my sincere gratitude to all those who contributed to the successful completion of this project. Firstly, I would like to thank the management of Koperasi PUO for giving me the opportunity to undertake this project and for providing me with the necessary resources to complete it. I also extend my appreciation to the staff of Koperasi PUO

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EXPLORING HISTORY THROUGH IMMERSIVE VIRTUAL REALITY

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ABSTRACT

In recent years, the use of immersive virtual reality (VR) technology for historical and educational reasons has grown in popularity. This study discusses the possibility of immersive VR in improving understanding of historical events. This study will help us to understand how well immersive VR can improve historical learning experiences by reviewing the research, reference book and textbook Sejarah. This study also investigates the drawbacks and challenges of taking VR in historical education. The outcomes of this study suggest that immersive VR can provide a fun and interactive approach to learn about historical events by giving consumers a greater understanding for historical events. However, to ensure its efficiency and a successful outcome, the use of VR technology in historical education needs a great deal of thought and preparation. The statement of the issue covers how traditional approaches are failing to engage the students in history learning. In comparison to conventional approaches, virtual reality interactive exhibits and extra learning materials improve the teaching process. In conclusion, Immersive VR recreations of significant historical events have the capability to transform historical study and changed how we experience the past and extract lessons from it.

INTRODUCTION

The study of history is an essential aspect of understanding the history and development of Malaysia. However, traditional methods of teaching history, such as reading textbooks or attending lectures, may not always engage students' interest in history. Therefore, this project can increase students' interest in history by allowing students to study history while playing. By using VR technology, students can step into historical settings, interact with people and objects, and provides a more immersive and active learning experience that can be highly engaging and effective in helping students to gain deeper understanding of history. The goal of this project is to provide a virtual reality (VR) experience that puts people in the exploration of historical places and events. Virtual reality (VR) technology will be used to deliver a distinctive and interactive experience that will interest people in a manner that conventional historical education cannot.

PROBLEM STATEMENT

Students might not always be actively engaged in learning history through traditional techniques like lectures and textbooks. Due to this, historical events and their significance may no longer be of interest or value to people. By offering a more interesting and participatory way to learn Form 1 history, immersive virtual reality has the potential to improve the educational process. In order to better history education and get beyond the drawbacks of conventional approaches, the problem statement seeks to investigate how immersive virtual reality can be applied.

OBJECTIVE

1. To provide a more engaging and interactive learning experience.
2. To promote critical thinking and historical analysis skills.
3. To fostering interest in history and promoting lifelong learning.

Fig. 1: Diagram of Agile Methodology

Requirements Definition and Analysis of Concepts, conduct a literature review of the use of IVR in historical education and its potential. Second, conduct research on historical events and sites to be included in the IVR experience. Next, develop a storyboard and design the virtual environment. Fourth, Develop the virtual reality experience using Unity and 3D modelling software. Lastly, Test the IVR experience with users and evaluate its effectiveness in achieving the project's objectives.

SCOPE

Students in Form 1 are most likely the intended audience for "Exploring History Through Immersive Virtual Reality". Users will be able to examine historical information through immersive and interactive experiences using the system, which would be a virtual reality (VR) platform. In contrast to traditional textbooks or lectures, the system would use VR technology to create a virtual world that users could explore and learn about history in a way that was more interesting and memorable. Interactive exhibits that let visitors touch and engage with objects are only one feature that the system might have. To further improve the educational experience, the system might also provide instructional resources like timelines, historical context, and expert comments. Overall, using immersive virtual reality to study history has the potential to make it more approachable and interesting.

EXPECTED RESULTS

The expected output of this project is an immersive virtual reality experience that explores historical events. Puzzles, and challenges all possible gameplay features, and they are all set in historically realistic environments and made using period- appropriate tools and weapons. To help students in learning more about historical events of the era they are playing in, the game may also include learning resources components. These could take the form of text or animated films with instructive text as hint. This project to give students an enjoyable and challenging gaming experience while simultaneously delivering an interactive and interesting way to learn about history.

CONCLUSIONS

In conclusion, immersive virtual reality technology offers a new and interesting method to learn about history by allowing users to fully immerse themselves in historical events. Students can engage with history in ways that were historically not possible, which helps them understand historical events better. Immersive virtual reality has the potential to change the way we study and understand history by recreated important historical events. It has the potential to change the study of history.

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INFORMATION SYSTEM: JTMK, PUO ALUMNI

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ABSTRACT

The JTMK department has been struggling to connect with their alumni due to a lack of a centralized platform. To address this issue, we aim to develop a web-based platform that provides alumni with access to job postings, news updates, messaging features, and a directory of fellow alumni. We will also integrate the platform with social media platforms such as LinkedIn, Facebook, and Instagram, and incorporate analytics and reporting tools to monitor user behavior and improve engagement levels. The platform will prioritize user data security and privacy by implementing appropriate measures and complying with data protection regulations. To ensure functionality, performance, and usability, we will conduct thorough testing across various devices and platforms. We will provide comprehensive documentation and user support resources to make navigating and using the platform simple and user-friendly. This project will bring significant value to JTMK alumni by enabling them to build and maintain strong connections while also advancing their careers.

Keywords: JTMK, PUO, alumni, web-based platform

INTRODUCTION

Information System: JTMK, PUO Alumni is a web-based platform for alumni with job postings, messaging, news, directory, and donations features. It incorporates strong security measures including authentication, authorization, encryption, and regular security audits. It also integrates with social media platforms like LinkedIn, Facebook, and Instagram. It uses analytics and reporting tools to track user behavior and engagement. The platform provides alumni with features to connect with each other and JTMK, stay updated on news and events, and contribute to the JTMK community.

PROBLEM STATEMENT

JTMK department is lacking a centralized platform to remain connected with their fellow alumni. Without a centralized platform, alumni struggle to stay informed about current events and opportunities within their field of study, limiting their career advancement and networking abilities. Our project will provide significant value to JTMK alumni, enabling them to build and maintain strong connections, while also advancing their careers.

OBJECTIVE

This project aims to develop a web-based platform for JTMK alumni to create profiles, access information, and connect with each other. It will implement communication and networking features, including messaging, forums, groups, and a directory of alumni. On top of that, we incorporated data analytics and reporting to monitor alumni engagement levels and improve platform services. Our project will ensure user data security and privacy by implementing appropriate measures and complying with data protection regulations. We will make sure to test the platform to guarantee the functionality, performance, and usability across devices and platforms. The project will provide comprehensive documentation and user support resources for easy navigation and use of the platform.

MATERIALS AND METHODS

Materials
The development of our platform will be using frameworks such as Laravel. As for the database, we will be using MySQL to store and manage user data. We can use analytics and reporting tools such as Google.

Methods
Our project will follow an agile methodology to ensure that the platform meets their needs and expectations.

EXPECTED RESULTS AND DISCUSSION

Delivering a fully functional web-based information system that enables alumni to stay connected and involved with JTMK, PUO is the project's goal. The system must be simple to use, safe, and mobile and PC device compatible. The system should improve the overall alumni experience and foster an active and involved alumni community by giving users the chance to establish and personalize their profiles, update their contact information, and get essential information on PUO-related events and projects.

CONCLUSIONS

In conclusion, our project aims to create a web-based platform that will provide JTMK alumni with a centralized space to connect with each other, stay informed about current events and opportunities, and contribute to the JTMK community. By prioritizing user data security, incorporating communication and networking features, and providing comprehensive documentation and user support, our platform will offer significant value to alumni looking to advance their careers and build strong connections within their field.

ACKNOWLEDGEMENTS

The authors wish to express their sincere gratitude to the Department of Information and Communication Technology, Ungku Omar Polytechnic for their support in conducting this research. The authors would also like to thank the research participants for their cooperation and valuable contribution to this study.

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Language and literacy game

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ABSTRACT

Games that focus on language and literacy have proven to be helpful therapies for people with autism spectrum disorder (ASD). These games target the difficulties experienced by people with ASD and offer an engaging and encouraging learning environment. These games are meant to improve language and literacy abilities by utilising personalised approaches, multi- sensory engagement, structured environments, social interaction, and reinforcement mechanisms. The growth of literacy, social participation, and linguistic competency are all impacted favourably, according to research. Playing games that enhance language and literacy development can be a potential way to help people with ASD.

Keywords: Bahasa Melayu, literacy, mobile game application, autism, ASD

INTRODUCTION

Nowadays language and literacy have become the heart and soul of our society and have always been too. Thus, being skilled in language and literacy is very important to survive in this community. According to our findings, specific individuals face massive problems when it comes to learning and understanding key aspects of language and literacy and they are individuals with autism. Autism Spectrum Disorder (ASD) is becoming common among children in this era, and it is becoming an increasing concern for parents. According to data 1 in every 44 children is suffering from this condition and 31% of them face decreased ability for social skills and rational thinking. Thus, our project involves helping these individuals develop and learn the language and literacy skills.

PROBLEM STATEMENT

People with Autism Spectrum Disorder (ASD) often have difficulty learning language and literacy through conventional methods. These difficulties can manifest in a variety of ways, including difficulties with comprehension, expressive language, and reading skills [1]. Traditional language and literacy teaching methods may not effectively address the unique needs and learning styles of people with ASD. As a result, there is a lack of specific games or resources specifically designed to help people with ASD develop their language and literacy. However, it is important to recognize that advances in educational technology and the growing understanding of ASD have paved the way for the development of innovative interventions and tools to address these challenges. By leveraging the potential of technology and incorporating evidence-based strategies, it is possible to create engaging and personalized games that can help people with ASD on their journey to language skills. and read and write. Such games can provide a more personalized and interactive learning experience, providing opportunities for personalized instruction, visual aids, and sensory integration that meet the unique needs and strengths of individuals have ASD.

OBJECTIVE

To provide appropriate guidance for people with autism spectrum disorder (ASD) in language understanding and literacy, a language and literacy game can be specially designed for their needs. This game is a valuable tool to help people with ASD learn and develop language and literacy skills. By incorporating evidence-based strategies and leveraging educational technology, play can provide a unique and engaging learning experience. Games can provide interactive activities, visual aids, and personalized instruction to meet the diverse learning styles and strengths of people with ASD. It can include different difficulty levels and adaptive features to ensure a personalized learning path for each player. Through interactive storytelling, interactive visuals, and auditory cues, games can help

people with ASD improve comprehension, expressive language, and reading and writing skills. In addition, games may incorporate elements of repetition and reinforcement to facilitate learning and memorization. By creating a language and literacy game specifically designed for people with ASD, we can provide a supportive and inclusive learning environment that promotes language and literacy development them in a fun and accessible way.

MATERIALS AND METHODS

Materials
The project utilized a combination of Hypertext Markup Language (HTML), Cascading Style Sheets (CSS), JavaScript (JS), Hypertext Preprocessor (PHP), and MySQL as the database for its development.

Methods
The game will be developed following the Spiral Methodology, which involves creating a prototype and conducting risk analysis at each phase of development. Additionally, early production of the product will be done to facilitate testing and allow for necessary amendments. This methodology enables flexibility in changing requirements during later stages of development.

EXPECTED RESULTS AND DISCUSSION

This project aims to help children with autism spectrum disorder (ASD) improve their social and literacy skills. Language is crucial for our future and plays a significant role in society. However, some individuals with ASD struggle with learning language and literacy. By creating language and literacy games, we can make a positive impact on their abilities. If successful, this project could benefit people worldwide by enhancing their language skills. These games can improve reading and writing abilities, allowing individuals to better understand and express their thoughts. They also provide an enjoyable way to learn and develop skills.

CONCLUSIONS

The proposal encompasses the introduction, problem statement, objective, scope, project significance, literature review, methodology, references, Gantt chart, cost planning, and conclusion for the development of a language and literacy game tailored for individuals with autism spectrum disorder (ASD). Our aim is to create a game that caters specifically to the needs of individuals with ASD and helps them enhance their language and literacy skills, which are vital for their daily lives.

ACKNOWLEDGEMENTS

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BRAINFLEX: CEREBRAL PALSY TRAINING GAME

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ABSTRACT

BrainFlex is a cerebral palsy training game. This project describes the development of a mobile game application designed to help children with cerebral palsy to test and improve their cognitive skills. The game was developed using the Spiral Model methodology, which involves a continuous cycle of prototyping, testing, and feedback to ensure that the final product meets the needs of the target audience. The game includes features that address the unique learning needs of children with cerebral palsy, such as visual aids, simple controls, and customization options. BrainFlex offers game modes that present the player with a series of objects or images to memorize. The game includes different difficulty levels, with increasing numbers of objects to remember and decreasing time limits for viewing the objects. The game is designed to be customizable to the player's abilities, with the ability to adjust difficulty levels and time limits. In addition, the game incorporates progress tracking to allow caregivers and therapists to monitor the child's progress over time. The development of this game application offers a promising avenue for improving the cognitive abilities of children with cerebral palsy, while providing a fun and engaging way for them to learn. Overall, BrainFlex has the potential to be an effective and enjoyable tool for children with cerebral palsy to develop and enhance their cognitive abilities.

Keywords: cerebral palsy, brain training game, cognitive exercises, mobile game application

INTRODUCTION

Spastic cerebral palsy is a condition that can lead to movement and posture difficulties due to muscle stiffness and spasticity. While it is a permanent condition, there are various therapies and interventions that can help individuals with cerebral palsy improve their motor skills and cognitive abilities. Brain training games, such as BrainFlex, are a type of software that provides cognitive exercises designed to improve memory, attention, and other cognitive skills. The development of a cerebral palsy brain training game application can be an innovative and useful tool for individuals with cerebral palsy. Such an application can provide personalized exercise that targets specific areas of cognitive function and can be used in conjunction with other therapies and interventions. The development of this application requires the involvement of experts in fields such as psychology, game design, and software development. The result will be a comprehensive and effective tool that can help individuals with cerebral palsy improve their cognitive abilities and enhance their overall quality of life.

PROBLEM STATEMENT

Manual therapy sessions are time-consuming and repetitive, inability to provide customized and measurable cognitive training programs (traditional interface can be challenging) that can adapt to the changing needs of children with spastic cerebral palsy. Lack of effective cognitive training programs that covers wide range of platform for individuals with spastic cerebral palsy on the market. Often brain training games on the market are not designed with accessibility in mind, making it difficult for individuals with cerebral palsy to use them effectively.

OBJECTIVE

To develop an automated and adaptive cognitive training program using a user-friendly interface that can provide customized and measurable therapy sessions for children with spastic cerebral palsy. To develop a robust and reliable game platform that is compatible with various devices such as smartphone and tablet using suitable game development software. Ensure the game is accessible to individuals with cerebral palsy, with features such as adjustable difficulty levels, adaptive controllers, and audio feedback.
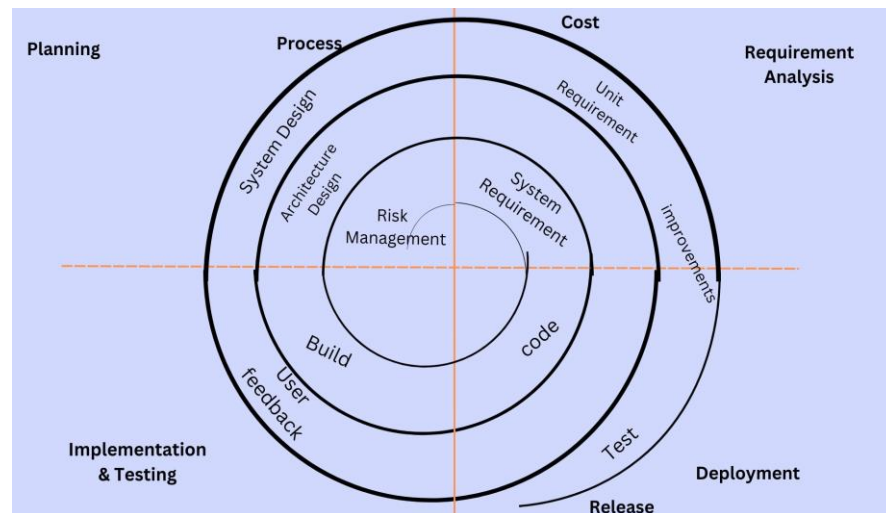
Fig. 1: Spiral Methodology's Diagram

First, our team enters the planning phase. In this phase, the overall objectives of the game app are defined, along with the project requirements, constraints, and risks. The team will also identify the target audience for the game app, which in this case would be people with cerebral palsy. Second, requirements analysis. The requirements analysis phase involves defining the specific needs of the users and the game app's functionality. In this case, the team would need to consider the unique needs of people with cerebral palsy and design the game app to be accessible and usable for them. Third, design. In the design phase, the team will create a high-level design of the game app, including the game mechanics, user interface, and graphics. The team will also consider any accessibility features that need to be included in the design to make the game app usable for people with cerebral palsy. Fourth, implementation. In the implementation phase, the team will create the actual game app based on the design created in the previous phase. The team will also conduct unit testing to ensure that the game app is functioning properly. Fifth, testing. In the testing phase, the team will test the game app for functionality, performance, and usability. The team will also test the game app with people with cerebral palsy to ensure that it is accessible and usable for them. Lastly, deployment, in the deployment phase, the game app is released to the public or the target audience. The team will also provide ongoing support and maintenance for the game app to ensure that it continues to function properly.

EXPECTED RESULTS AND DISCUSSION

The expected results of BrainFlex will aim to help improve cognitive function in individuals with spastic cerebral palsy. BrainFlex also wishes to Increase engagement and motivation by introducing a user-friendly interface and customizable difficulty levels and various input methods among players. Not only that, BrainFlex is expected to enhance by accommodating the various needs and abilities of individuals with spastic cerebral palsy. Furthermore, through user testing with individuals with spastic cerebral palsy, BrainFlex aims to receive positive feedback and reviews from players and their caregivers. Lastly, BrainFlex aims to increase awareness and understanding of cerebral palsy and for bigger industries to take notice and thus furthering more targeted and accessible cognitive training programs.

CONCLUSIONS

BrainFlex is a mobile game designed to improve cognitive and motor skills in individuals with spastic cerebral palsy. Its various activities and exercises provide a fun and engaging way to address the challenges faced by individuals with cerebral palsy. Developed through a Scrum methodology, BrainFlex features various cognitive and motor activities, difficulty levels, progress tracking, and user customization. It has been designed to meet the specific needs of individuals with cerebral palsy and has the potential to be a valuable tool in the field of rehabilitation gaming.

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VACCINATION SYSTEM PROTOTYPE V1.0

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ABSTRACT

Early childhood vaccinations protect children from diseases before they are exposed. By gathering the data of children who have registered on the internet, we can convert this manual system into electronic vaccination system, giving parents who chose not to vaccinate their kids one more chance to do so.

INTRODUCTION

Because their immune systems have not yet developed the essential defenses to battle serious infections and diseases, young children are more susceptible to infectious diseases. For underdeveloped nations like ours, ensuring that children have access to proper healthcare and immunization against diseases that can be averted by vaccines, is a very difficult task. This emphasizes the necessity of putting in place a better, more knowledgeable system to ameliorate the current situation.

With the assistance of this system, parents can plan vaccinations journeys for their children while also receiving information and storing records. Based Child system enables parents to schedule immunization sessions quickly and easily for their kids. The administration will oversee the child's vaccination report and appointment permission. The hospital will provide an update on the child's vaccination application.

PROBLEM STATEMENT

Deputy Minister of Health Malaysia,Datuk Seri Dr.Hilmi Yahaya said that using the books provided to parents for their children before was quite tricky and impacted children or babies when health records were lost. "Sometimes there are parents who forget to bring the book when doing treatment and the book is left behind after moving from one state to another, resulting in the child's report including immunization shots not being identified. "For example, there was 31 cases of Diphtheria last year and five of them died because it was found that they had not been immunized or fully immunized, "he said. This highlights the importance and need of having a better, smarter system in place, to improve the situations. This application provides a system to provide information, store records and helps parents schedule vaccination appointments for their children.

OBJECTIVE

1. Store children's personal details and vaccine info.

2. Automated application using web & mobile apps.

3. Notification date/time for immunization.

METHODS

Methodology
Requirements > design > development > testing > deployment > review

InfinityFree: Infinity Free is a free web hosting service that supports PHP and MySQL databases. It offers a generous amount of disk space and bandwidth for hosting web applications. While it doesn't have specific mobile application support, you can use the hosting service for your web application's backend and connect your mobile app to it.

EXPECTED RESULTS AND DISCUSSION

- This website is accessible and user friendly.

- Parent can manage and view their child's data, and also, they can add, update and delete these data

- Parents can view appointment details and their status.

- My Reminder: They can also view appointment reminders.

CONCLUSIONS

Vaccines are the safest method in the world to protect children from life-threatening diseases. Vaccines are among the greatest advances in global health and development. For more than two centuries, vaccines have safely reduced outbreaks of diseases such as polio, measles, and smallpox, helping children grow up healthy and happy. Therefore, parents need to be careful about vaccines and appointments that have been arranged to give the vaccine.

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ITNet EASY STUDY MOBILE APPLICATION

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ABSTRACT

The mobile application system study for students is a project aimed at developing a system that provides students with access to learning resources, encourages learning, and assists in the implementation of e-learning for Information Technology (IT) students. By providing a central platform for IT students in Polytechnic in Malaysia, this system aims to improve the overall learning experience by reducing the need for physical textbooks or paper notes, making learning more environmentally friendly. Overall, the mobile application system study for students aims to improve the overall learning experience for IT students in Polytechnic in Malaysia by providing a convenient, accessible, and engaging platform for learning.

Keywords: textbooks, paper notes, mobile learning

INTRODUCTION

ITNet Easy Study is a mobile application that provides students with access to the Introduction To Network (ITN) courses. These apps are amazing for giving students quick and easy access to the notes, game, video and learning resources for ITN courses. By using apps for their notes and revision, students use less paper. This makes study apps eco-friendly.

PROBLEM STATEMENT

ITN concepts can be complex and difficult to understand, particularly for students who are new to the subject or lack prior experience in the field. Additionally, there is currently no educational platform for Introduction to Networking (ITN) courses that consistently provides students with standardized notes and exercises. Furthermore, the absence of a digital platform for notetaking and revision can result in an increase in paper usage, contributing to environmental degradation.

OBJECTIVE

The app aims to provide students with quick and easy access to notes, videos, and other learning resources, which can help them prepare for their ITN course in a more efficient and effective manner. In addition, the app addresses the lack of a consistent platform for ITN courses by providing standardized notes and exercises to its users. Furthermore, the app's eco-friendly feature can promote sustainable practices in education by reducing paper waste.

METHODOLOGY
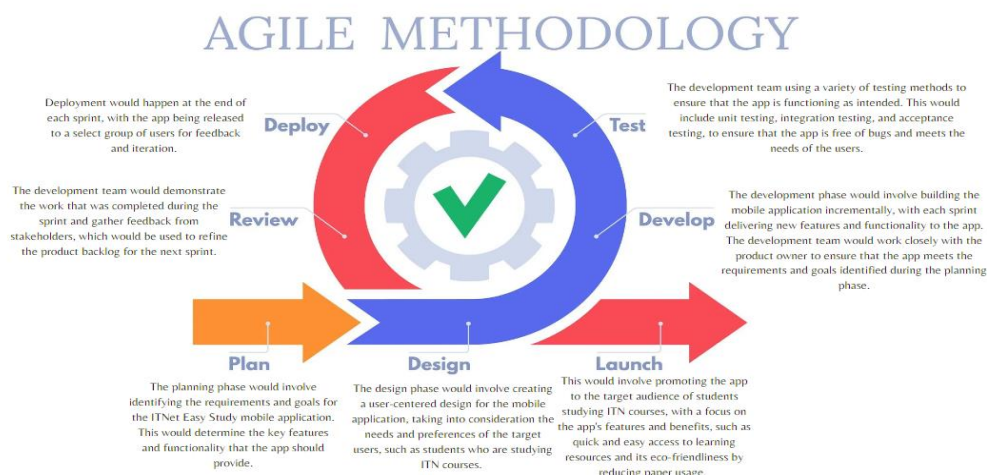
Fig. 1: Agile Methodology Diagram

The Agile methodology is a flexible and iterative approach to project management that is commonly used in software development. It can be a good fit for our projects ITNet Easy Study, which involve developing a mobile application with focus on user experience.

Overall, the Agile methodology can be a good fit for ITNet Easy Study, allowing for the development of a user-friendly and eco-friendly mobile application that meets the evolving needs of students and stakeholders.

EXPECTED RESULTS

The primary output of this system would be achieved through a mobile application that allows students to access and engage with these resources at their own pace and on their own schedule. This system would reduce the need for physical textbooks or other materials, making it easier for students to access course materials and learn remotely.

CONCLUSIONS

This application can be an educational platform that can provide reference and facilitate all of Information Technology (IT) students in Polytechnic Malaysia in understanding Introduction to Networking (ITN) courses more deeply.

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BITE BETTER

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ABSTRACT

The Bite Better app is a comprehensive platform for managing daily food intake and monitoring nutrition. It provides users with an easy and convenient way to track their diet and make healthier food choices. The interface of the Bite Better is an app that can be accessed with an android phone. The system is implemented with Flutter and Visual Studio Code. The app features a comprehensive database of food and drink items, along with their nutritional information and tools for setting and tracking dietary goals and progress. With its user-friendly interface and simplified meal planning tools, Bite Better is an effective tool for anyone looking to take control of their health and wellness. Whether you're on the go or at home, Bite Better is always there to help you stay on track and achieve your diet and nutrition goals.

Keywords: manage, healthy, application.

INTRODUCTION

In the current age of globalization, according to Pharmacoeconomics (2015), the number of people suffering from obesity increasing. This puts obesity on the list one of most dangerous health problems worldwide. To solve this problem, Bite Better offers an app that allows people to track their daily calorie intake and diet. Bite Better also provides food suggestions based on the user's goals. The app also notifies users the right time to take a meal. Users can also view their daily calorie intake or past calorie intake. Bite Better is a great app that helps people track their calorie intake in a healthier way.

PROBLEM STATEMENT

According to JMIR Mhealth Uhealth (2021), some people lack awareness of specific functionalities and capabilities either they can use this kind of app properly or not. A busy lifestyle leaves little time for them to make a good habit of tracking their calorie intake. According to JMIR Mhealth Uhealth (2021), some people discontinued using this kind of app because they were not able to use it in certain environments such as at work. for example, they are not able able to input data while working. Lack of motivation and accountability when it comes to maintaining a healthy diet. According to JMIR Mhealth Uhealth (2021), some people feel bored, and others say that development is limited and precisely this leads to user motivation declining over time.

OBJECTIVE

This project will make it easy to keep track of calorie tracking and nutritional intake. Based on this application is dedicated to helping people who are aware of their health but still lack experience or knowledge on tracking and monitoring their calorie intake daily.To implement this project in a suitable environment to test its functionality. Our invention is to make it user friendly that anyone can use regardless of whether they are tech savvy or not. Needy people don't like boring diets like eating fiber and protein for a long time. This is because they have already eaten foods like rice, fried foods, etc. According to this, our project can help people to encourage and motivate users to make healthier food choices and eat a balanced diet. This is important because people need encouragement and motivation from others to achieve their goals in making changes to healthier lifestyle.

MATERIALS AND METHODS

Materials
The Bite Better app was developed using the Flutter framework with Visual Studio Code. Firebase Authentication and Firestore were used for user authentication, data storage, and backend development. The app's social networking features were implemented using third-party APIs and libraries such as Cloud Firestore and Cloud Functions.

Methods
The development process of Bite Better app started with planning and designing the app's features and user interface. The app's architecture was designed using the Flutter framework with Visual Studio Code. Firebase Authentication was integrated into the app to allow users to register, log in, and manage their profiles.

Next, Firebase Firestore was used to create and manage user data, including user profiles, dietary goals, and nutrition information. The app's food and drink database were created using a comprehensive list of nutritional information gathered

from trusted sources. Bite Better also uses Google's Vision API to allow users to scan barcodes to automatically add food items to their database.

The app's social networking features were implemented using Firebase Firestore and Cloud Functions. Users can create and join groups, share posts, participate in challenges, and message other users directly within the app. Bite Better also offers rewards to users who achieve their dietary goals and complete challenges.

To ensure data privacy and security, Firebase Security Rules were implemented to restrict access to user data and ensure that data is encrypted both in transit and at rest.

EXPECTED RESULTS AND DISCUSSION

Helping more people tend to be healthcare.

CONCLUSIONS

Based on research, most of disease come from nutrition we consume every day. We must take care of our body health for a better life.

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E-OUTING SYSTEM USING INTRANET NETWORK

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ABSTRACT

The E-outing Management System using intranet network is a software solution that improves outing management within organizations. By leveraging an intranet network, it provides a centralized platform for planning, coordinating, and tracking outings, while ensuring data privacy and security. With automated processes, enhanced communication, and comprehensive reporting, this project also streamlines outing management, fosters collaboration, and enables organizations to make data-driven decisions for successful outings.

Keywords: data privacy, security, outing management

INTRODUCTION

An E-outing Management System using intranet network is a comprehensive software solution designed to facilitate and streamline the management of outings or events within an organization. By leveraging the power of an intranet network, this system offers a centralized platform for planning, coordinating, and tracking outings, ensuring efficient communication and collaboration among hostel students. By utilizing an intranet network, the E-outing Management System using intranet network restricts access to authorized individuals within the organization, ensuring that sensitive outing-related information remains confidential. This level of security promotes data privacy and minimizes the risk of unauthorized access.

PROBLEM STATEMENT

The current outing management process within our organization lacks efficiency and faces various challenges. Students need a validation stamp as approval from warden to go outing and the outing card possibly lost due to irresponsible action of the student themselves. Then, the list of the student's entry and exit dates can no longer be viewed by the warden, as the excursion system is used manually. Finally, the process of manual management is time consuming especially when it involves large number of students.

OBJECTIVE

The E-Outing System using Intranet Network aims to save the time management of students and wardens while not having to waste money buying outing cards. In addition, this system also to retrieve the records of the students in the database, the warden can check the activities of the students from the beginning. Furthermore, to create an E-outing system that makes it easier for everyone in hostel to participate, even in large numbers.

METHODOLOGY
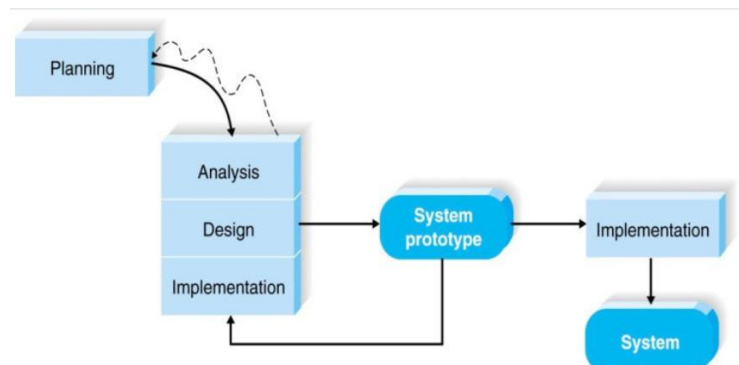
Fig. 1: Prototype Methodology Diagram

The System Prototype Methodology, there is planning, analysis, design, implementation, prototyping, and system testing. The first step for the e-outing system is to identify the system's needs, purpose, targets, scope, and time to develop the

system. After that analyse by collecting current data Etc. After the system design analysis, the user interface defines the system architecture and other functions to help create the basic implementation blueprint.

After the design, the system can be implemented and after that part of the implementation of the prototype is created to show the functionality of this e-outing. Finally, the system needs to be thoroughly tested to ensure the functionality, reliability, usability of this to avoid any issues.

EXPECTED RESULTS

The primary output of this system can create a system with scheduling, collaborative planning, budget management, reminders and notifications.
In scheduling, students can see Dormitory exit rotation. In addition, the system allows multiple users to collaborate such as the school, students, staff and so on. In the budget, students can arrange Spending money, it can also educate students to be frugal. This system will give reminders d N notification if permission to leave is given to students.

CONCLUSIONS

In conclusion, the E-outing Management System using intranet network revolutionizes the way organizations manage outings. By automating processes, enhancing communication, ensuring data security, and providing valuable insights, it also streamlines outing management and creates a more efficient and engaging experience for student hostels.

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Reduce Network Traffic using Load Balancer

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ABSTRACT

In today's digital landscape, businesses and organizations rely heavily on online services and applications to deliver their products and services to consumers, especially institutions that rely on delivering information such as final scores and academic updates to students. With increasing demand and heavy traffic, it becomes important to ensure optimal performance, scalability, and availability of the server performance. So, a load balancer plays an important role in achieving this objective. Therefore, our project is to enhance the performances of a web server by distributing the traffic using a load balancer using Amazon Web Services. This project helps to balance the traffic for users to access it smoothly. Overall, this project can optimize the response time of the web services.

Keywords: performance, scalability, availability, load balancer, web server, distributing traffic, Amazon Web Services

INTRODUCTION

A load balancer is a device or software component that distributes network traffic across multiple servers in a server farm or data centre. Its purpose is to optimize resource utilization, maximize throughput, minimize response time, and prevent overload on any individual server. Load balancers are used to increase capacity and reliability of applications and web servers. Our project aims to improve the user experience when using our web server, which will be similar to our institution's web called IPUO. IPUO is accessed by the staffs and students of Ungku Omar Polytechnic, and the response time is often disappointing, especially during the peak hours (in the morning when the lecturers need to access the web server to take the attendance of the students and at the start and end of a semester when students need to access the web server to register new courses and check results). Due to heavy traffic, the website is experiencing slow response times, which negatively impacts user experience and hinders the website's ability to handle increased loads. To overcome these challenges, the implementation of a load balancer is crucial.

The primary objective of our project is to improve the website's scalability, reliability, and performance. By distributing incoming network traffic across multiple servers, the load balancing solution will optimize resource utilization, maximize throughput, minimize response time, and prevent server overload. This will result in a faster and more responsive website, even during periods of high traffic.

The project acknowledges the need for scalability to accommodate the growing user base and increasing traffic demands. By implementing a load balancer, the website will be able to handle larger volumes of concurrent requests without compromising performance. The load balancer will intelligently distribute traffic among multiple servers, ensuring that each server operates within its capacity and can efficiently serve user requests.

Performance optimization is a key focus of the project. By utilizing load balancing algorithms and metrics, the solution will intelligently distribute traffic based on server capacity, load levels, and response times. This will prevent any single server from becoming overloaded and ensure that user requests are processed efficiently, resulting in significantly improved response times and a more seamless user experience.

In summary, our project aims to address the performance issues caused by heavy traffic. By implementing a robust load balancing solution, the project aims to enhance scalability, reliability, and performance, leading to a faster and more responsive website. With improved user experience and increased capacity to handle high traffic loads, the website will thrive and deliver its services effectively.

PROBLEM STATEMENT

The website is currently experiencing significant performance issues due to heavy traffic. The website's slow response times are negatively impacting user experience and hindering its ability to handle the increased loads effectively. The primary problem faced by the website is the inability to handle the high volume of incoming traffic efficiently. As the number of concurrent users increases, the web server becomes overwhelmed, resulting in slow response times and degraded performance. This leads to frustrated users, increased bounce rates, and potential loss of business opportunities. The heavy traffic not only strains the server's resources but also causes uneven distribution of the workload. The server may become overloaded while others remain underutilized. This imbalance further worsens the performance issues and limits the website's ability to scale and handle the increasing demand effectively. Overall, the goal of a load balancer for a web server is to ensure high availability, scalability, and performance of the web application, by distributing traffic across multiple servers and optimizing resource utilization.

OBJECTIVE

The objective of the load balancing project for the web server is to address the performance challenges caused by heavy traffic and improve the overall performance of the website. The project aims to achieve the following objectives:

1. **Improve Performance**: The primary objective is to significantly enhance the performance of the website by reducing response times and optimizing resource utilization. Implementing a load balancing solution will distribute incoming traffic across multiple servers, preventing overload on the server and ensuring that user requests are processed efficiently. The expected outcome is a noticeable improvement in website performance, resulting in faster page load times and a more seamless browsing experience for users.

2. **Enhance Scalability**: The project aims to enhance the scalability of the website to handle increasing traffic demands. By implementing load balancing, the website's capacity to accommodate higher volumes of concurrent users and requests will be significantly increased. The load balancing solution will dynamically distribute traffic across the servers, allowing the website to scale horizontally and effectively utilize available resources.

3. **Enhance User Experience**: The load balancing project aims to significantly enhance the user experience of the website. By improving performance, reducing response times, and ensuring high availability, the website will provide a more seamless and satisfying browsing experience for users. The expected outcome is increased user engagement, reduced bounce rates, and improved overall user satisfaction.

Overall, the objective of the project is to implement a robust and effective load balancing solution that improves website performance, enhances scalability, and enhances user experience. By achieving these objectives, the project will enable the website to handle heavy traffic loads efficiently and provide an optimal browsing experience for users.

MATERIALS AND METHODS

Completing a web server load balancing project requires a combination of hardware, software, and network components, as well as careful planning and implementation. Here are some materials and methods we use in completing a web server load balancing project:
The materials and methods we use to complete our project are:

i. Client PC and Server PC – a PC that launches the server and another PC to launch the clients.
ii. Amazon Web Services (AWS) - AWS is used to create and launch a server, and later to enable http access to the server.
iii. VMWare WorkStation & Windows 10 ISO – VMWare to launch virtual machines (clients) and Windows 10 ISO as the operating system for the client.
iv. Matomo - open-source web analytics application to track online visits to one or more websites and display reports on these visits for analysis.

EXPECTED RESULTS AND DISCUSSION

The expected result of our project is to improve the scalability, reliability, and performance of the website, by distributing incoming network traffic across the servers. A load balancing solution can improve the user experience of a web server. The expected result is to have a smoother and seamless user experience that avoids interruptions or delays.
The expected results can be seen through:

1. **Improved Website Performance**: The implementation of a load balancer is expected to significantly improve the performance of the website. Users will experience reduced response times, faster page loads, and a more seamless browsing experience. The website will be able to handle heavy traffic loads without suffering from slow performance or delays.

2. **Enhanced Scalability**: The load balancing project aims to improve the website's scalability, allowing it to handle increasing traffic demands efficiently. By distributing traffic across the servers, the website's capacity will be increased, enabling it to accommodate a larger number of concurrent users and requests. This scalability enhancement will ensure that the website remains responsive and accessible even during peak periods of high traffic.

3. **Enhanced User Experience**: The expected outcome of the load balancing project is an improved user experience for visitors to the website. Users will enjoy faster page loads, shorter response times, and a more reliable browsing experience. The website will be able to handle high traffic volumes without sacrificing performance, leading to increased user satisfaction and engagement.

CONCLUSIONS

In conclusion, implementing a load balancer can bring significant benefits to a web server, including improved scalability, reliability, performance, and user experience. By distributing incoming traffic across the servers, load balancing can reduce

the risk of overloading individual servers, ensure that the application remains available in case of failure, optimize the performance of the application, secure user data and communication, and provide a seamless user experience.

To successfully complete a load balancing project for a web server, careful planning, implementation, and testing are required, including selecting the appropriate hardware and software components, designing, and configuring the load balancing algorithms and metrics, monitoring and optimizing the performance of the system, and ensuring ongoing maintenance and security.

In summary, a well-designed and implemented load balancing solution can help a web server to handle increased traffic loads, improve the user experience, and provide a more robust and reliable platform for users.

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SHOPPER'S MATE

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ABSTRACT

The study's goal is to assess the usefulness of the Shopper's Mate application in improving consumers' shopping experiences. Consumers frequently face challenges such as difficulties navigating large shopping areas and confusion over hypermarket layouts. Furthermore, awkward payment methods and price errors can make shopping more difficult. Finally, poor preparation can lead to buyers forgetting important goods or overspending on unimportant items. The Shopper's Mate app offers multiple solutions to these problems. The app offers hypermarket layouts that help shoppers find their way around large stores, a cashless payment method that provides convenience and security, and a "to buy" list section that assists shoppers in planning their purchases. The overall goal of this study is to offer evidence for the usefulness of the Shopper's Mate application in improving the shopping experience and encouraging consumers to make purchases by solving frequent shopping difficulties.

INTRODUCTION

Shopper's Mate is a user-friendly application designed to simplify the shopping experience. The app has three key purposes that appeal to modern-day shoppers' needs. For starters, it allows users to make a shopping list of products they want to buy. This keeps consumers organized and ensures they don't forget anything. Second, the app gives users an overview of the overall location of things to make it easier for them to browse and locate the items they require. Finally, the app allows users to scan the things they want to buy, removing the need for manual entry and speeding up the checkout process. Shopper's Mate is for anyone wishing to simplify their shopping experience, thanks to its simple UI and useful functionality.

PROBLEM STATEMENT

The problems that users usually face when buying groceries is that they find it difficult to find the items that they want. They spend a lot of time finding different islands and can't locate the specific island that they prefer. Moreover, customers also spend a lot of time queuing to pay for their goods. Eventually, this will cause a long queue to form and raise customers dissatisfaction.

OBJECTIVE

The objectives of this project are:

1. Firstly, to develop Shopper's Mate application.
2. The second objective is to locate different sections of islands easily.
3. Lastly, to scan and to calculate the total amount of groceries price.

MATERIALS AND METHODS

Materials
1.   Programming languages like Python, C/C++
2.   Barcode scanner
3.   Communication module

Methods
Users can turn on their phone to list all the desired items they want. Once done listing the items, they can turn on their item locator which works only based on different sections of islands. Then, they can scan the items they want by using RFID scanner. Lastly, there are 2 methods to pay. They can pay online or physically.

EXPECTED RESULTS AND DISCUSSION

The Shopper's Mate system is expected to provide several benefits to its users. The following are the expected results of this project:

1.   Enhanced shopping experience: Users can quickly find islands in the mall using the location navigator and list products they intend to purchase using the item list function. These functionalities will improve users' overall purchasing experiences, saving them time and effort.

2.   Shorter checkout procedure: The Shopper's Mate system's barcode scanning capability is expected to drastically shorten the checkout time, as customers only need to load their items into the shopping cart and the barcode scanner will do the rest. This will save a lot of time and decrease the amount of time customers must wait at the checkout desk.

3.   Easy payment: The Shopper's Mate system will simultaneously total up the price amount as the user loads up their shopping cart. Once the customer is done, they will just have to show the total amount to the cashier through their system.

CONCLUSIONS

In conclusion, Shopper's Mate is a useful tool for enhancing the shopping experience and raising consumer happiness. It can reduce the time taken for customers to find their preferred items and as well as reduce the time taken for them to pay for their goods. It is easy to use and accessible to a wide variety of users.

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SMART MARKETING THROUGH IBEACON TECHNOLOGY

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ABSTRACT

How are we going to help retailers to market their products? Hence this paper presents an IBeacons based on indoor positioning system for huge shopping malls. At first it will analyse the advantages of beacons compared to NFC and other indoor positioning systems. This beacon uses three-layer architecture of Internet of Things to have message-push-services. Smart marketing through Ibeacon technology use shortest distance algorithm Floyd to find the nearby sensors to sense the nearest BLE devices. Ibeacons technology will provide more accurate, cost-efficient approach to indoor positioning of web browser. The consumers just must turn on Bluetooth features when they entered the mall to get pop-up notifications link about sales of surrounding areas. Ibeacons technology is expected to boost their product sales with discount promotion. The justification from this project, Ibeacon encourages retailers and consumers to enhance the experience and convenience for marketing strategies and beneficial returns.

Keywords: iBeacon, retailers, marketing, technology

INTRODUCTION

Smart Marketing Through Ibeacon Technology is user-friendly for consumer use. The beacons technology provides Bluetooth features that come out with Bluetooth Low Energy (BLE). At this point, the consumer just turns on the Bluetooth features on their device. Then, the consumer will get the push message service on their device that informs the consumer about sales or promotions that going live in the Bluetooth accessibility range which is 10 meters. The consumer can reach easily the retailers based on navigation information that appears on the website. Indirectly, the consumer can manage their time properly and give information about sales to the consumer. Ibeacon also provides a simple UI for consumer use and is useful.

PROBLEM STATEMENT

The completeness of carrying out the daily routine is so heavy for consumers that there is a sense of unconsciousness and forgetfulness in doing the act, especially in shopping for necessities and wants. Therefore, with the existence of this technology, it can reduce the consumer's awareness of the sales and promotions that take place in supermarkets. Small marketing funds make it difficult for retailers in supermarkets to grow their sales in addition, they also have to pay high prices for site rent and other labor. The existence of these Ibeacons can directly benefit other funds and it seeks to increase their marketing productivity.

OBJECTIVE

The objectives of this project are: -

1) Develop smart marketing through Ibeacon technology.
2) To store marketing information.
3) To send and receive the marketing information when consumers entered the mall.

MATERIALS AND METHODS

Materials
Ibeacon censor device, Python, php, Agile Development, Smartphone

Methods
The consumer must turn on the Bluetooth features on their device when they entered the mall in a range of about 10 meters, the device will receive a notification pop-up about sales that happening in a range around. They just have to click on pop up notification to reach the address and level of a store in the mall.

EXPECTED RESULTS AND DISCUSSION

Smart Marketing through Ibeacons Technology is expected to provide the result as shown below: -

1) The consumer will be able to use the website easily with functionality one click features to get the information about retailers location and product that going promotion.
2) The consumer will be able to receive the notifications about sales and promotion in 10 metres when they walk through the radar
3)The retailers can improve the new marketing strategy to maximise their sales and profit, beside their also can work efficiency and manage the fund properly.

CONCLUSIONS

Ibeacon technology can improve the marketing for retailers and at the same time, it will give the benefits to consumers for shopping flexibility. Other than that, Ibeacon technology can be a new revolution for an incoming era that provide more advantages for productivity service and marketing strategy to attract consumer to buy.

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PRODUCTS RENTAL MOBILE APPLICATION

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ABSTRACT

Products rental mobile application is to help the people who is having expensive things can share the things with those who can't afford so that they also can experience the usage of the things. Consumers and Daily Users find it hard to own products or gadgets in a high price amount. Consumers don't wish to purchase this item in a high price due to short term usage only. To cover investment costs and to generate passive income to product owners by renting out their products. the objective of this project is to cover investment costs and to generate passive income to product owners by renting out their products. To allow customers to easily gain access and usability to products they need which they can't afford by renting under a low price. The methodology and materials are Agile Methodology Is one of the best and simplest methodologies to effectively turn your vision for a business into a full-fledged Software Solution program. The Materials are React Native - Front End, Flutter Framework and Firebase - Cloud Database. The benefits of products rental mobile applications are Easy to book a product in this mobile. it doesn't matter where u is. convenient to make or book the products. Unlike a physical store, mobile apps offer customers 24/7 access to your products and services. With targeted messaging and information, apps are also much more convenient to access than websites. The scope for this product rental mobile applications are User Roles: Admin, User Dual Mobile Application, admin will have a separate application to perform administrative tasks based on users and the main concept. User will have separate application with more user-friendly navigation to perform user tasks and roles. The market potentials can be used worldwide, as this concept can be applied to everyone from any industry and Geo zones. Able to target those who just want to create a new source of side hustle/income. Able to ease everyone's daily needs and necessities by this peer-to-peer product rental concept. In conclusion, product rental mobile application will help those who can't afford to buy expensive things so that they can rental the products.

Keywords: agile, mobile application, user-friendly

INTRODUCTION

A product rental mobile application is a digital platform that allows users to rent products from a wide range of categories, such as electronics, furniture, fashion, tools, and more. The app provides a convenient and cost-effective way for people to access and use items they may not want to purchase outright, or that they may only need for a limited period.

PROBLEM STATEMENT

The current rental market is fragmented and inefficient, making it difficult for renters to find suitable properties and for landlords to manage their rental properties effectively. Traditional methods of renting properties, such as classified ads and word-of-mouth referrals, are outdated and time-consuming. Additionally, renters often face difficulties in finding trustworthy landlords and properties that meet their specific requirements. The solution to these problems lies in the development of rental apps that can connect renters and landlords in a streamlined and efficient manner. However, current rental apps often have limited features and are not tailored to the specific needs of the rental market. Therefore, there is a need for a rental app that provides comprehensive features, such as property search, property management, payment processing, and communication tools, to meet the needs of both renters and landlords. This app should also incorporate measures to ensure safety and security for all parties involved in the rental process.

OBJECTIVE

The objective of this project is to cover investment costs and to generate passive income to product owners by renting out their products such as printers, projector, laptop and many more. More than that, the second objective of this products rental mobile application is to allow customers to easily gain access and usability to products they need which they can't afford by renting under a low price. A customer couldn't afford to buy a printer so they can rent a printer by this product rental mobile application where they can rent out the printer under a low price that they can afford to it.

REQUIREMENTS

To those couldn't afford to buy expensive things such as projector, print scanner and printers. The particular users can rent those things from this application.

DESIGN

Products rental mobile application terms and conditions apply and design the user interface and feedback mechanism. Based on the testing results, the system may need refined and improved

DEVELOPMENT

Creating user interface, product listing, rental management , payment processing and communication

TESTING

Testing the products rental mobile application with the user interface and the feedback mechanism. Based on the results, the application will be improved and modify.

DEPLOYMENT

This testing will be conduct with students and those who could not afford to buy printers, or laptop to access the application and effectiveness of the application

REVIEW

Monitoring the problems of the products rental mobile application and providing support to the users of the application and make the application user-friendly and if it is necessary to made an update it will updated

Materials React Native

- Front End Flutter Framework Firebase
- Cloud Database
-

EXPECTED RESULTS AND DISCUSSION

The expected output of this project which is products rental mobile application is to provide who need helps with their problems with a perfect solution which is renting products by application. This mobile application will help those who is not affordable to buy things. Is one of the best and simplest methodologies to effectively turn your vision for a business into a full-fledged Software Solution program. Next, the expected output of this project is user interface, product listing, rental management, payment processes, communication, user feedback and ratings and notifications.

CONCLUSIONS

This project will help those who can't afford to buy expensive things so that they can rental the products by rental mobile application. This concept can be used worldwide, as this concept can be applied to everyone from any industry and geo zones. More than that, able to target those who just want to create a new source of side hustle/income. Lastly, able to ease everyone's daily needs and necessities by this peer-to-peer product rental concept.
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ACKNOWLEDGEMENTS

I would like to thank my groupmates and my supervisor to help us to finish this extended abstract. The guidance of my supervisor helped us to finish this extended abstract.

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MyPUO

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ABSTRACT

MyPUO is a digital identification application that is aimed for the implementation of digital matrix card in the institution that is designed to enable students access to various services within their educational institution. The system utilizes smart card technology to store and process data, providing secure and convenient access to campus facilities, events, and resources. The MyPUO app offers a range of features, including attendance tracking, library access, among others. It also provides enhanced security measures, such as encryption and biometric verification, to protect student data and prevent fraud. This abstract provides an overview of the MyPUO app and its features, highlighting the benefits it offers to students, educators, and institutions.

Keywords: attendance tracking, library access, security

INTRODUCTION

The MyPUO app is a modern digital solution that has revolutionized the way students access and use educational services. With the growing adoption of digital technology, educational institutions are increasingly leveraging smart card technology to provide students with a convenient, secure, and efficient means of accessing campus services. The e-student card system allows students to access campus facilities, events, and resources through a single card, reducing the need for multiple physical IDs and paperwork. It also enhances campus security by utilizing encryption and biometric verification, ensuring that only authorized individuals have access to student data and services.

PROBLEM STATEMENT

The traditional method of student identification and access control in educational institutions is through physical ID cards, which are often prone to loss, damage, or misuse. Additionally, students have to carry multiple ID cards for different services, making it cumbersome and inefficient. This has led to security issues and administrative challenges in managing student records. Therefore, there is a need for a more secure and efficient solution that can provide students with a single digital ID, which can be easily accessed and managed through this application. The e-student card system aims to address these issues by providing a secure, convenient, and centralized solution for student identification and access control, enhancing the educational experience for students and educators.

OBJECTIVE

This project is to provide students with a single digital ID and that can be easily accessed and managed through a system. Students can have a better experience accessing campus services such as library or labs. This application also aims to enhance campus security by utilizing encryption and biometric verification to protect student data and prevent fraud. Administrators may have lesser burden in record-keeping and reporting student data. Finally, is to ensure compliance with regulatory requirements and industry standards for data privacy and security.

MATERIALS AND METHODS

Materials

Design and Development Tools: You will need development tools such as Integrated Development Environments (IDE) like Visual Studio or Eclipse, and programming languages such as Java, Python, or Swift to develop the MyPUO app.

Backend Development: You will need to build a backend system to store and manage student data.

APIs and Web Services: APIs and web services allow your e-student card application to interact with other systems, such as a student information system or a card reader

Methods

Registration and Verification: Students can register for an e-student card by providing their personal information, such as name, ID number, and contact details. The application can then verify the student's identity through a verification process that may include email verification, phone verification, or face recognition.

Attendance Management: The e-student card application can be used to manage attendance in classrooms or events. The application can track student attendance by scanning their e-matrix cards using a card reader.

Analytics and Reporting: The application can generate reports and analytics based on attendance records, and other data.

EXPECTED RESULTS AND DISCUSSION

- Students get their e-matrix card by signing up to the system.

- Students can use their mobile phones to access campus facilities and the need to carry physical cards are no more.

CONCLUSIONS

In conclusion, MyPUO app can bring many benefits to educational institutions, students, faculty, and administrators. By implementing an e-student card application, institutions can streamline administrative tasks, improve security, and enhance the student experience. However, it is important to note that the implementation of an e-student card system requires careful planning, research, and development. Institutions must ensure that the application meets their specific needs and requirements, and that appropriate security measures are in place to protect student data.

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Stationnemet

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ABSTRACT

This project aims to address the common issue of parking in crowded areas, specifically in the hostel of Politeknik Ungku Omar. The proposed solution involves the implementation of a smart parking system using image sensor intelligence/camera to automatically scan and record the number plate of vehicles entering and exiting the parking lot. The system eliminates the need for physical tickets and speeds up the entry and exit process, resulting in reduced congestion and improved traffic flow. Additionally, the system helps reduce the risk of accidents with vehicles maneuvering in small areas and simplifies the guard's affairs by collecting visitor information automatically. The proposed system provides an efficient and cost-effective solution to the parking problem and improves safety and security by enabling remote monitoring and control of parking lots. The project involves requirements gathering, design, implementation, testing, and maintenance phases to ensure the system meets the specified objectives and requirements. The system is recommended for people who bring their cars to the campus of Politeknik Ungku Omar.

*Keywords***:** parking system, image sensor, number plate recognition, smart parking, traffic, security enhancement

INTRODUCTION

The increasing number of vehicles on the roads has led to the development of various parking systems to manage parking in busy and congested areas. The conventional parking system involves manual entry and exit of vehicles, which results in long queues, time-consuming processes, and a waste of valuable resources. To overcome these challenges, the proposed system aims to develop a smart parking system that utilizes image sensor intelligence/camera to automatically scan and record the number plate of vehicles entering and exiting the parking lot. The system will enable the drivers to enter and exit the parking lot without the need for physical tickets, leading to a seamless and efficient parking experience. Furthermore, the system will improve safety and security by enabling remote monitoring and control of parking lots. The aim of this project is to design, develop, and implement a smart parking system that addresses the challenges of conventional parking systems and enhances parking experiences for drivers.

METHODOLOGY

Requirements Gathering (Analysis)
Firstly, we will identify the requirements of our stationnement system. This includes what the stationnement system is about, what needs to be done, what the deliverables are, and the resources that we need.

Design
We will create a design for our stationnement system based on the requirements you gathered in the analysis stage. This involves creating a detailed plan of how we will go about implementing our stationnement system.

Implementation
We will actually start building our stationnement system. We will develop the stationnement system based on the design we had created in the design stage.

Testing
We will test the stationnement system to ensure that it meets the requirements specified in the analysis stage. This involves rigorous testing of all features and functionalities of stationnement.

Maintenance
Finally, we will maintain the stationnement system and provide ongoing support. This includes fixing any bugs, making updates and improvements as needed.

EXPECTED RESULT

The proposed system using image sensor intelligence/camera for smart parking is an efficient and cost-effective solution to the problem of parking in crowded areas. It eliminates the need for physical tickets and speeds up the entry and exit process, which reduces congestion and improves traffic flow. The system also improves safety and security by enabling remote monitoring and control of parking lots.

CONCLUSION

In conclusion, the implementation of stationnement offers enhanced security, improved efficiency, and increased convenience for both parking facility operators and drivers. The system's ability to accurately monitor and collect data allows for better decision-making and optimization of resources. As technology continues to advance, further innovations in stationnement are expected, resulting in even smarter and more efficient parking solutions in the future.

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FINANCE TRACKING SYTEM USING BLOCKCHAIN TECHNOLOGY (FTS-BT)

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ABSTRACT

Financial monitoring is the process of tracking daily revenue and expenses, which helps with budgeting and is an important tool for managing organization finances. However, faults in financial data management might arise, such as data tampering and unlawful money withdrawals. Traditional financial monitoring systems are insecure, opaque and susceptible to security risks. The shortcomings in these systems highlight the importance of having a decentralized and secure system that delivers transparent and accurate financial data for monitoring and reporting. Thus, FTS-BT is design to transform financial monitoring by providing a safe, transparent and accurate system for financial tracking and reporting. This system will be developed using Agile Methodology and Phyton programming language. There are two types of users for this system : administrator and employee. The administrator can access transaction history for all their financial transaction and ensure that each transaction is properly recorded and verified. Meanwhile the employee are responsible to add income of expenses, create and verify transaction and store the financial data. A significant contribution is to help management to monitor in real-time each transaction whether it is properly recorded and the transactions are recorded in a tamper-proof manner. Moreover by using this system the organization can improve their trust . The unique feature of FTS-BT is that it enables the management to make better informed decisions and improve their financial performance as well can provide financial transactions more accessible to individual. As a result, organization can reduce significant revenue loss due to security breach.

Keywords: blockchain, decentralized, monitoring, reporting, transaction, tamper-proof

INTRODUCTION

The act of recording one's daily income and expenses is known as financial monitoring, often referred to as expense tracking. Receipts, invoices, and business expenses are entered into an accounting ledger during the process. It supports budgeting and is a fantastic tool for monitoring business finances. We need to prevent data from being exposed to the wrong person since there are errors in the management of the organization financial data, such as changing data and making unauthorized withdrawals of money. The blockchain is a decentralized database that links each block in a chain of data by cryptographically hashing the blocks that came before it [1]. Additionally, it guarantees that financial data is securely preserved and that it cannot be changed. When a new block is generated, it will be forwarded to all parties for their approval. This increases the security of the data storage because each of these blocks will be saved after approval and cannot be changed by anyone. All the data pertaining to the accountants in charge of monitoring spending is accessible to the system administrator. Along with the accountant's provided revenue information, it is possible to view the status of any entries that have been modified or changed.You can also see the additional spending data provided by the accountant. The admin has access to every report.

PROBLEM STATEMENT

The two primary points in the problem statement for this project. The first point error in managing the organization financial data such as manipulating data, taking money from the business without authorization and stealing money from it. The organization may suffer large financial losses because of these mistakes, which can be brought on by human error or deliberate fraud. The second problem is traditional financial monitoring systems [2]. These systems could be vulnerable to security risks, data tampering and a lack of transparency. Financial data, for instance, can be modified to hide fraud or mistakes and this can be challenging to spot without a reliable monitoring system. Additionally, it may be challenging to follow financial activities across several platforms or systems due to the lack of transparency in traditional methods. Finally, the integrity and confidentiality of financial data may be seriously threatened by security concerns like hacking and cyberattacks.

OBJECTIVE

The objective of this project is to design a blockchain-based finance tracking system that can trace financial transactions safely and clearly. This entails creating a system architecture that uses cryptographic techniques to safeguard and validate financial transactions on a decentralized ledger. The proposed method can secure the integrity and immutability of financial data by utilizing a blockchain-based system, which can assist avoid fraudulent actions. Next objective is to develop a finance tracking system using blockchain technology. This entails putting the proposed system architecture into action and creating the softwarecomponents required for the system to track financial transactions across numerous platforms and systems. The proposed technology will allow for real-time tracking of financial transactions, making financial data monitoring and reporting easier. Finally, is to test FTS-BT by tracking financial expenses and revenue. This entails running a real-world experiment to see howeffective the system is at tracking financial data across numerous platforms and systems. FTS-BT, the proposed system, has the potential to transform financial monitoring by providing a safe and accurate system for financial tracking and reporting.

METHODS

FTS-BT project will be developed using the Agile methodology, which is a flexible and iterative approach to software development. The Agile Model methodology is characterized by its focus on collaboration, customer satisfaction and continuous improvement [3]. Figure 1 shows the Agile methodology phases.
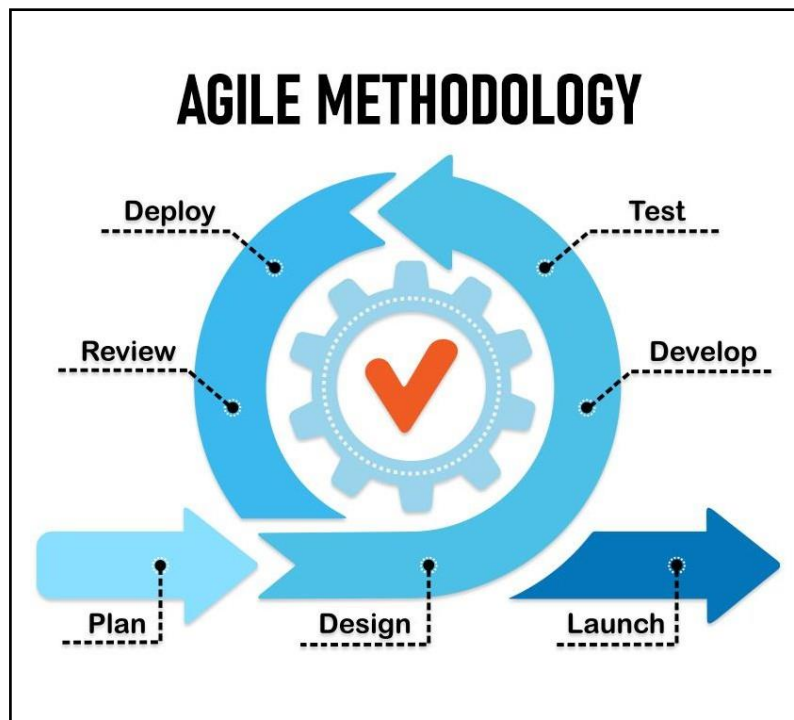
Fig. 1: Agile Methodology

The planning stage will involve defining the project scope, objectives, and requirements. The design stage will involve creating a detailed design of the FTS-BT system, including the user interface, database schema, and system architecture. During the development stage, the FTS-BT system will be built using an iterative approach. Each iteration will involve developing a small, working piece of the system that can be tested and refined. The testing stage will involve testing the FTS-BT system for functionality, performance and security. Any issues that are identified during testing will be addressed and resolved in subsequent iterations. Finally, the deployment stage will involve deploying the FTS-BT system to the intended users. Ongoing maintenance and support will be provided to ensure that the system continues to function effectively. So, on this methodologywe can conclude that The Agile Model methodology allows for flexibility and adaptability throughout the development process. This means that changes and updates can be made easily.

EXPECTED RESULTS AND DISCUSSION

Expected result 1: Enhanced security.
FTS-BT can provide a decentralized and data transmitted via network are encrypted.

Expected result 2: Immutable and unchangeable records.
Blockchain technology guarantees that the financial data recorded in the system cannot be changed or erased, offering a secure and trustworthy audit trail of all financial transactions.

Expected result 3: Enhanced user experience.
FTS-BT can offer a logical and user-friendly interface that makes it simple for users to keep track of their money and conduct transactions.

CONCLUSIONS

FTS-BT can transform financial monitoring by providing a safe, transparent, and accurate system for financial tracking and reporting.

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DATABASE ACCESS CONTROL SYSTEM (D.A.C.O.S)

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ABSTRACT

Database Access Control System (D.A.C.O.S) is designed to manage database access. To guarantee that only authorized users can access the database, the system will be implementing Role Based Access Control (RBAC) and Mandatory Access Control (MAC). Both access controls are implemented to maintain confidentiality and integrity. This system is developed using the Tree Methodology and Visual Basic. There are two types of users for this system: administrator and staff. The administrator is responsible for managing user permission, monitoring system performance, troubleshooting issues, and doing backup and recovery. Meanwhile, the staff will be doing their task based on RBAC and MAC assigned to them. A significant contribution is to help management by providing robust database access control mechanisms for businesses and organizations. Moreover, by using this system, the organization can ensure that only authorized individuals have access to confidential data. This helps to increase business confidence while lowering the dangers of data breaches. The unique feature of D.A.C.O.S. is that it allows businesses to manage database access and pass vital information within and outside of their structure while maintaining a high level of secrecy by implementing encryption methods. As a result, organizations can reduce significant revenue loss due to security breaches.

Keywords: database, access control system, authorize, confidentiality, integrity, encryption.

INTRODUCTION

As the world becomes increasingly digital, the importance of database access control systems cannot be overstated. For instance, the Malaysian Ministry of Health acknowledged in August 2020 that a former employee had disclosed the private information of thousands of COVID-19 patients. The employees improperly utilized their privileged access to the database, allowing them to retrieve and distribute private information. This incident demonstrated the urgent need for reliable database access control systems that can limit and keep track of access to confidential information.

To prevent similar incidents from occurring in the future, organizations must prioritize the implementation of robust database access control systems. [1] The aim to develop D.A.C.O.S. is to overcome this issue. This system enables organizations to regulate access to their databases, ensuring that only authorized personnel can access sensitive data. Organizations can significantly reduce the risk of data breaches and protect their sensitive information by using a range of measures, including user authentication, role-based access control and data encryption.

PROBLEM STATEMENT

The primary problem is the lack of sufficient access controls, which allow staff members who have access to sensitive information to misuse it. Without proper controls, there is a risk that information can be accessed, modified, or deleted by unauthorized personnel which will lead to data breach or even financial loss. This can result in unauthorized access to the system, allowing malicious actors to steal or manipulate sensitive data. Due to that, we aim to develop a system that implements RBAC and MAC to manage database access.

OBJECTIVE

The main objective is to design a secure database access control system. This involves identifying the requirements for the system, such as the types of users and their access levels [2] and designing a database schema that can accommodate these requirements. The design includes security measures, such as encryption, that can protect the system from unauthorized access. Next, to develop a database system that implements user authentication and authorization mechanisms.[3] This requires creating user accounts with unique usernames and passwords, assigning roles and permissions for each account based on their clearance level and implementing access control policies that restrict access to sensitive data. The system will be tested to validate the access control system to ensure that it is functioning as intended.

METHODS

Tree methodology is used to develop D.A.C.O.S. Figure 1 shows the Tree Methodology and the phases involved.
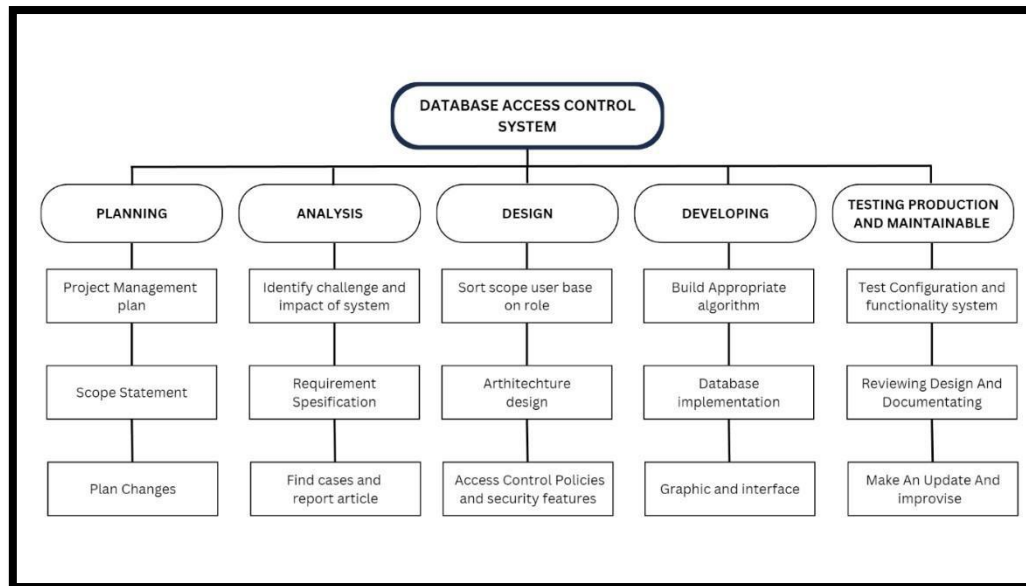
Figure 1: Tree Methodology

Phase 1: Planning
Project management involves organizing and managing resources to achieve specific goals for the project. The scope statement outlines the goals, deliverables, tasks and resources needed for the project. Then, planning changes involves identifying potential changes to the project plan and outlining a process for managing these changes.

Phase 2 : Analysis
This involves identifying and documenting the functional and non-functional requirements of the system, such as the user's needs and technical specifications. Additionally, finding cases and reviewing articles related to the project can provide insights and ideas for the system design.

Phase 3 : Design
In the design phase, we sort the scope of users based on their roles to determine permissions and access levels. Architecture design involves creating a high-level design of the system's structure, components, and interactions to meet project goals. Finally, defining access control policies and security features to be implemented in the system, including RBAC, MAC and encryption.

Phase 4 : Developing
In the developing phase, we will build an appropriate algorithm for the system, select the database management systems and design and develop the graphical user interface (GUI) for users to interact with the database.

Phase 5 : Testing
In the testing production and maintainable phase, we must ensure that the system functions correctly and meets the specified requirements and goals of the project. Reviewing the design and documentation of the system is essential to ensure that they are accurate, complete, and up to date. Finally, updating and improving the system over time will ensure that it remains functional and effective.

EXPECTED RESULTS

Expected Result 1
Implementation of Role-Based Access Control (RBAC): All access to data is allowed based on the user's job. The user's job function determines access, which is granted by an administrator.

Expected Result 2
Implementation of Mandatory Access Control (MAC): This is a more stringent access control mechanism based on data sensitivity. It only allows authorized individuals with a need-to-know basis access.

Expected Result 3
Implementation of encryption for data both in transit and at rest: This protects data during transmission and storage by transforming it into an unreadable format that can only be accessed by authorized users with the appropriate decryption key.

Expected Result 4
A secure and efficient system that allows for easy management of database queries while preventing data breaches and unauthorized access: The main purpose of these intended outcomes is to provide a safe and efficient database system that allows authorized staff to conveniently manage and query data while preventing data breaches and unauthorized access.

CONCLUSIONS

Most organizations are worried about the increasing issues with illegal access to critical data. As more businesses rely on digital platforms to store and manage their data, the requirement for robust security measures is more important than ever. With the support of this project, we hope to assist organizations in safeguarding their data against illegal access and averting data breaches. The system will allow authorized personnel to access sensitive information by adopting access control mechanisms by implementing RBAC and MAC.

ACKNOWLEDGEMENTS

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Real-Time Number Plate Recognition System

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ABSTRACT

The proposed project aims to develop a real-time number plate recognition system that can be used for security and surveillance purposes. The system will be based on state-of-the-art artificial intelligence and deep learning algorithms to recognize licenseplates accurately and quickly, presenting a significant improvement compared to traditional methods. The system automates the process of identifying and tracking vehicles, making it an excellent solution for public places such as airports, bus stations,and malls. Traditional systems depend on the lighting and weather conditions, making them unreliable, costly, and requiring specific equipment. The proposed solution aims to tackle these issues by developing a system that can efficiently work in all lighting conditions, in real-time, and easy to deploy and use. The successful implementation of this system will enhance safetyand security in public places, significantly reducing the time and cost of manual surveillance methods.

Keywords: Real-time, Number Plate Recognition, Security, Surveillance, Artificial Intelligence, Deep Learning, Lighting

INTRODUCTION

Advancements in computer vision have led to the development of real-time number plate recognition systems, which can automate the process of identifying and tracking vehicles in areas where security is a priority. Traditional methods are time-consuming and unreliable, but the proposed solution uses artificial intelligence and deep learning algorithms to provide accurate results quickly and cost-effectively. The aim is to design and develop a system that works in all lighting conditions and is easy to deploy and use.

PROBLEM STATEMENT

The problem statement identifies the current state of license plate recognition systems as unreliable and inefficient, with traditional methods requiring manual surveillance that is prone to errors and affected by weather or low lighting. The proposed solution is to develop a real-time number plate recognition system using computer vision and deep learning algorithms to automate the process, improving accuracy and efficiency in all lighting conditions. This system will have a significant impact on security and surveillance systems, accessible to a wider range of organizations and businesses and enhancing safety in public places.

OBJECTIVE

The Real-Time Number Plate Recognition System utilizes computer vision and image processing algorithms to automate identification and tracking of vehicles. The proposed project aims to develop specific, measurable, achievable, relevant, time-bound objectives for the system, which will impact law enforcement agencies and transportation departments. Measurable objectives include improving accuracy and processing time and enhancing scalability, anomaly detection capabilities and overall performance. KPIs are designed to measure the system's effectiveness, ensuring the security of the processed data, andpreventing unauthorized access. A time-bound plan includes objectives geared towards developing an efficient number plate recognition algorithm, constructing a system for real-time number plate recognition, and evaluating the system's overall performance.
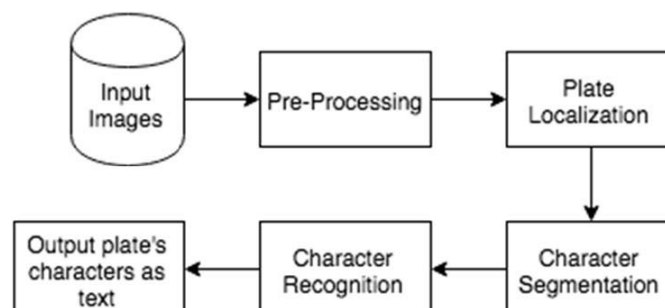
Fig. 1: Real-Time Number Plate Recognition System components

MATERIALS AND METHODS

Figure 2 illustrates the architecture of the proposed system in order to recognize the car plate characters. Firstly, a pre-processing step containing several tasks is applied on the input image to improve the quality of the input image. This can leads to do accurate further analysis since unwanted information can be removed as well as the region of interests will be remained. Afterward, the location of the plate is required to be identified in step plate localization. In a case that the car plate is rotated (skewed) for any reasons, skew detection step can eliminate this impact from the image that leads to increase the accuracy of the Real-Time Number Plate Recognition System. Furthermore, since the car plate characters are considered as one object, it is required to separate each region (character) in character segmentation. Finally, the separated regions (characters) will be compared with several templates (samples) that are recently stored in order to identify the characters.
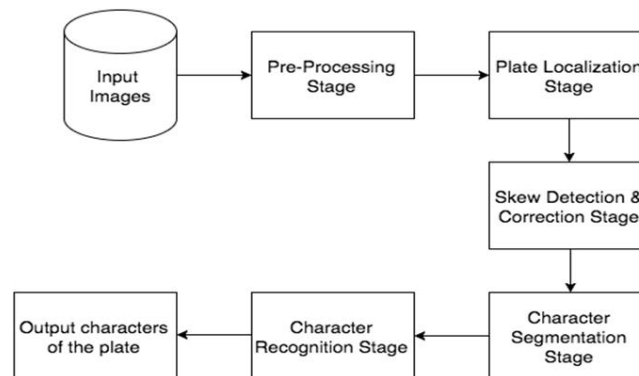
Fig 2. Architecture of proposed system.

EXPECTED RESULTS AND DISCUSSION

Figure 3 illustrates the output generated by the proposed system. In addition, Table I demonstrates the performance and accuracy of the proposed system. The LP character recognition of the system is calculated based on the number of accurately recognized plates over the number of successful plates segmentation. In a case that if a character of the plate did not recognize accurately, thus it is considered as unsuccessful output.

Table II compares Malaysia standard and non-standard number plates. The proposed method achieves high accuracy for character segmentation (99.6%) and character recognition (91.5%) compared to related works. The proposed system outperforms those that implement template matching for character recognition. The overall accuracy of the ANPR system is improved by the proposed method.

Table III shows that different illuminations do not affect character recognition accuracy, but skewed images significantly decrease accuracy. 0-degree images in any illumination attain 100% accuracy, while skewed images' accuracy fluctuates due to image quality degradation when correcting skewness. This is a limitation of the proposed system. To overcome this, the system can add more template characters with different scales and rotations to improve matching accuracy.

The system cannot handle reflected light on images, which can be mistaken as characters. Error checking algorithms usually resolve this issue, but some connected components may still be mistakenly recognized as characters, leading to decreased accuracy. White pixels captured during plate localization can also affect skew detection and correction as well as the recognition process.

The last drawback that can be found within this proposed system is that due to the similarities between characters such as B and 8, Z and 2, O and 0, this might lead the system to recognize these characters wrongly among them.
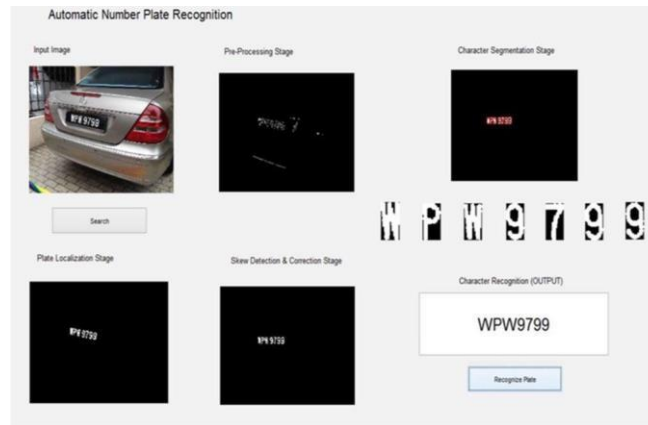
Fig 3. Output of text that represents the characters of the vehicle plate

Fig 4. Image with reflected lights close to the plate location

Fig 5. Yellow box highlights

Table I. Performance & accuracy of the proposed system

Step Name	No. of Inputs	No. of Successful Outputs	Success Rate
LP extraction	270	270	100%
LP segmentation	270	269	99.6%
LP character recognition	269	246	91.5%
Overall accuracy of system	270	246	91.1%

Table II. Performance & accuracy comparison

Reference	Types of Number Plate	Input Images	Classifier	LP Segmentation	LP Character Recognition	Average. Computational time
2	Standard Malaysian Plates	50	Template matching	N/A	N/A	N/A
3	Standard Malaysian Plates	150	KNN	90.5%	93.2%	N/A
4	Standard Malaysian Plates	100	ANN	98%	93%	N/A
5	Standard Malaysian Plates	50	Template matching	42%	52.4%	N/A
6	Standard Malaysian Plates	589	ANN	N/A	95%	N/A
7	Standard & Non-standard Malaysian Plates	300	Fuzzy Template Matching	98%	90.4%	1.7 seconds for Fuzzy, 0.75 seconds for Template Matching
8	Standard & Non-standard Malaysian Plates	500	Template Matching	N/A	81.33%	N/A
Proposed Technique	Standard Malaysian Plates	270	Template Matching	99.6%	91.5%	1.25 seconds

Table III. Accuracy comparison with different illumination and level of skewness

Illumination	No. of Input Images	-45 degree success rate	0 degree success rate	+45 degree success rate	Overall accuracy
Dark	90	28/30= 93.3%	30/30= 100%	23/30= 76.6%	81/90=90%
Normal	90	27/30= 90%	30/30= 100%	24/30= 80%	82/90=91.1%
Bright	90	25/30= 83.3%	30/30= 100%	28/30= 93.3%	83/90=92.2%

CONCLUSIONS

A captured image of non-moving vehicle in Malaysia is chosen as samples for the dataset in this system. Each of the input image has to undergo 5 stages of development accordingly, which includes pre-processing stage, plate localization stage, skew detection & correction stage, character segmentation stage and lastly character recognition stage for the system to generate anoutput. Each of the stage consists of specific techniques that were tested and applied to achieve the optimum output. Finally, it is to be proven to be 100% accurate for the plate extraction, 99.6% for character segmentation, 91.5% for character recognition and the overall accuracy of the system is 91.1%.

This system can be redesigned for multinational car license plate in the future. This can be done by changing the training set/ template characters' database based on the characters of the plate that the system recognizes. The recognition accuracy can beimproved by adding more different variations, scales and rotation of template characters to the database. However, there is always a trade-off between the recognition accuracy and the computational time. The next plan is to implement the PCA as a feature extraction to the characters in the system to identify patterns in data.

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SECURE PROJECT APPROVAL AND MONITORING PLATFORM

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ABSTRACT

Before the evolution of technology, projects and tender approval processes were typically done through physical reports and documents, which were often time-consuming and not very secure. Additionally, it was challenging to monitor project progress and make updates or changes in real-time. This led to inefficiencies and delays, which could have a significant impact on project outcomes. In the effort to address these challenges, the web-based platform for project and tender approval and monitoring was developed. The platform streamlines the project approval process by allowing regular employees or staff to submit their projects or tenders online. The authorized higher rank staff then has the ability to approve or reject the project, and once approved, the regular staff can continue to update the project progress in real-time. The boss or higher rank staff can monitor the progress of the project by viewing the percentage of the project completed.

Keywords: Project management, Tender approval, Document approval, Project approval Form

INTRODUCTION

In today's digital age, cyber threats have become increasingly prevalent and sophisticated. As a result, organizations need to take extra measures to ensure the security of their data and online platforms. One such measure is the use of a virtual private network (VPN), which creates a secure connection between the user's device and the platform. This helps to protect against unauthorized access, data breaches, and other types of cyber-attacks. In the context of project and tender approval, the need for security is paramount. In the past, these processes were often done manually, which increased the risk of errors, delays, and security breaches. To address these challenges, we have developed a web-based platform that enables authorized personnel to approve and monitor project progress online. To ensure the security of the platform, every employee is assigned a unique ID to enter the platform, and users are required to use a VPN before logging in. This adds an extra layer of protection against cyber threats and unauthorized access to the platform. Additionally, the platform includes a secure transaction process for purchasing company assets or any other kind of authorized transaction. Overall, our platform provides a secure and efficient way to manage project and tender approvals, monitor progress in real-time, and streamline processes. By implementing security measures such as VPN and unique IDs, we aim to protect against cyber threats and provide peace of mind to our users.

PROBLEM STATEMENT

The traditional method of project and tender approval processes were paper-based, time-consuming, and not environmentally friendly. Printing documents and using ink led to additional costs, and monitoring progress was challenging for companies. The lack of transparency could lead to unauthorized access, data breaches, and loss of important information. Moreover, theold transaction method, which used checks, was prone to deviation and could lead to accounting errors. Another challenge with the old method was that accessing and retrieving documents or records was time-consuming and often led to inefficiencies. This led to a lack of coordination between departments and decreased overall productivity. To address these challenges, we have developed a web-based platform that streamlines the project and tender approval process and enables real-time updates on project progress. By using the platform, companies can eliminate the need for physical documents, which is more environmentally friendly and reduces costs. Additionally, the platform provides a secure transaction process thateliminates the need for checks and minimizes the risk of accounting errors. By utilizing this platform, companies can streamline their processes and enhance their efficiency. The platform also ensures that project progress is accurately and transparently monitored, providing a comprehensive and accessible record of the project or tender.

OBJECTIVE

The objective of this project is to create a web-based platform that streamlines the project and tender approval process, reducing time-consuming, paper-based tasks, and increasing efficiency. Additionally, the aim of the platform is to provide a secure transaction process for purchasing company assets or making any financial transactions authorized by the company, reducing the risk of data breaches, unauthorized access, and accounting errors. This platform also intends to reduce costs associated with printing, ink, and other materials used in traditional projects and tender approval processes, making the company more environmentally friendly. Furthermore, the objective is to provide a more secure platform for managing sensitive company data, ensuring that project and tender information is accessible only to authorized personnel. The purpose ofthe platform is to provide a comprehensive record of project and tender progress, making it easy for authorized personnel to approve projects, update progress, and monitor completion. The ultimate objective of this platform is to improve coordination and communication between departments by providing a centralized platform for managing

projects and tenders, leading to increased efficiency and productivity. Finally, this project aims to ensure that the platform is easy to use, even for non-technical personnel, by providing a user-friendly interface and clear instructions.

MATERIALS AND METHODS

The material and method for this project involve the use of various software technologies and tools. The project will be developed using a combination of programming languages such as PHP, HTML, CSS, and JavaScript. The front-end of the platform will be developed using popular frameworks such as Bootstrap and jQuery, which will ensure a modern, responsive, and user-friendly interface. The back-end of the platform will be developed using the Laravel framework, which is a robust and secure PHP framework suitable for large-scale web applications. The platform will be deployed on a local server to ensure data security, and the domain will be registered to provide easy access for authorized personnel. The local server will be configured to ensure data backup and recovery, and regular maintenance will be performed to ensure the server's stability and security. To ensure data security and prevent unauthorized access, the platform will implement various security features suchas unique login credentials for each employee, two-factor authentication, and VPN access. The platform will also incorporate arole-based access control system, which will restrict access to sensitive data and features only to authorized personnel.

EXPECTED RESULTS AND DISCUSSION

The expected result of this project is a web-based platform that provides a secure and efficient solution for project and tendermanagement, as well as a reliable and safe platform for purchasing company assets. The platform will help to reduce time- consuming processes and costs, protect sensitive data, and enhance productivity through streamlined processes. The use of VPN access, two-factor authentication, and a local server will ensure the integrity and confidentiality of data. Overall, this platform will provide a modern and secure solution for businesses.

CONCLUSIONS

The development of a web-based platform for project and tender approval, monitoring, and transaction processes will providea modern and secure solution for businesses. The use of unique IDs, two-factor authentication, and VPN access will ensure the protection of sensitive data and minimize the risk of cyber threats. The platform will improve project management processes and enhance productivity through streamlined procedures. The incorporation of a local server and domain will provide greater control over the system and reduce costs. Overall, this platform will revolutionize the way businesses manage their projects and transactions, providing a secure and efficient platform for business operations.

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WEBSITE BLOCKER

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ABSTRACT

A website blocker or internet filter is a software program that intentionally restricts access to sites. The purpose of websiteblockers is to deter users from using distracting websites instead of completing their work.

Keywords: website blocker, software

INTRODUCTION

Computer classes provide students with access to a wide range of resources and tools that can enhance their learning experience. With the increasing use of technology in the classroom, students are often faced with the temptation to browse distracting websites during class time. A website blocker can be an effective tool for teachers to limit access to these websites, promoting a more focused learning environment. This project aims to develop a website blocker specifically designed for use in a classroom setting. The application will be designed to run seamlessly in the background and will allow the teacher to specify a list of websites to block during class time. The website blocker will be customizable, allowing the teacher to set up different blocking sessions for different classes or time periods. The website blocker will be designed to be user-friendly, with an intuitive interface that can be easily navigated by both teachers and students. The application will run on Windows. Overall, the development of this website blocker will provide teachers with a valuable tool to maintain a focused learning environment and help students stay engaged in class activities.

PROBLEM STATEMENT

The first problem statement is students are easily distracted in class. They will open another website rather than focusing on course content. Secondly, students inadvertently stumble upon appropriate content and malicious websites. This often happensbecause some students don't know if a website is safe or not.

OBJECTIVE

The objective of a website blocker for teachers or lecturers is to create a distraction-free learning environment and to ensure that students are focused on the course content. Teachers can use website blockers to prevent students from accessing distracting websites during class time, such as social media, online games, or other non-educational websites. Additionally, website blockers can help teachers and lecturers to prevent students from accessing websites that may contain inappropriate content, such as sites with violent or explicit material. This can help to create a safe and secure learning environment for students. Another objective of website blockers for teachers or lecturers is to promote the responsible use of technology. By restricting access to certain websites, teachers and lecturers can encourage students to use technology for educational purposesonly and discourage them from engaging in non-academic activities during class time.

MATERIALS AND METHODS

Materials
Python will be the programming language we will be using. We will then use Visual Studio as an Integrated Development Environment (IDE) to aid efficient writing, debugging, and testing of the website blocker. Finally, the website blocker interacted with web browsers to monitor and control website access, and we will utilize Google Chrome for this.

Methods
We chose RAD (Rapid Application Development) to develop our final year project website blocker. The RAD (Rapid Application Development) methodology is well-suited for website blocker development because it is a flexible, iterative, and user-centred approach to software development. The Advantage of RAD for this project are increased flexibility, RAD methodology allows for changes in requirements to be made more easily and frequently throughout the development process,allowing the final product to better meet the needs of its users. By allowing developers to create and test website blocker features quickly and efficiently, RAD methodology can help reduce website blocker development costs. This approach canalso aid in identifying and addressing issues early in the development process, thereby avoiding costly rework later.
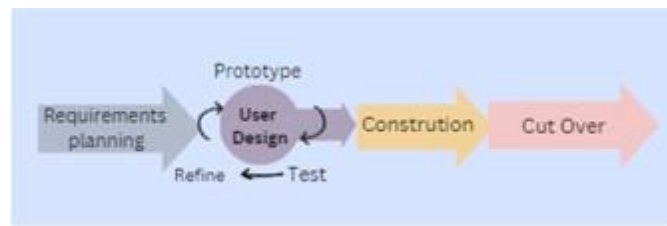
Fig 1. RAD Methodology Diagram

EXPECTED RESULTS AND DISCUSSION

The anticipated outcome of this project is the goal of website blockers is to keep users from using distracting websites instead of paying attention in class. Website blocks are designed to create a distraction-free learning environment so that students canfocus on the course content. They also stop students from getting distracting websites during class time. By restricting accessto specific websites or websites that are no longer useful, students can be encouraged to use technology for educational purposes only and discouraged from engaging in non-academic activities.

CONCLUSIONS

A web blocker can limit access to certain websites or applications, reducing off-task behaviour and improving classroommanagement and student engagement.

A web blocker helps teachers control student internet use, manage classrooms, and ensure educational online activity.

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PUO EMERGENCY APPS (PEA)

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ABSTRACT

PUO Emergency Apps are significant concerns today, particularly for individuals who live alone or travel to new locations. We designed and developed a mobile application to enhance personal safety and emergency response capabilities. The application will have a panic button feature that the student can activate incase of an emergency. When the student activates the panic button, the application will send a distress signal to the emergency services such as security guard and the student's emergency contacts. The signal will include the student's location, allowing the emergency services to respond quickly. This app can shorten the time of assistance in an organization while the polices are on their way to the incidents. So that, victims can be saved before they get worse. This application was developed primarily for usage in corporate settings including offices, hospitals, schools, and faculties. Thus, we made this application mainly to be used at polytechnics. Particularly at night, asthe route from the main entrance to the college is quite dark and silent according to my experience at night in thepolytechnic. These applications can assist students who walk alone especially girls. The method involves designing and implementing a mobile application that includes features such as panic button, live location tracking and emergency resources. The application will be developed using the Android platform and will integrate third-party services such as Google Maps and Firebase to enhance functionality. The expected findings are that the mobile application will enhance personal safety and emergency response capabilities by providing an efficient and effective means for individuals to call for help during an emergency. In conclusion, the application will provide an easy-to-use interface, real-time location tracking, and useful features to ensure the student's safety. With the increasing use of smartphones among students, this app has the potential to be a valuable tool for enhancing campus safety and security.

Keywords: live alone; panic button; emergency services; walk alone; live location tracking; call for help.

INTRODUCTION

An emergency is a serious, unpredictable, and usually destructive situation demanding prompt action. As per thestats each year, the ratio of people facing violent attacks or violent emergencies kept on increasing year by year all over the world. These include attacks, sexual invasions, and thefts. Here we are not talking only about the above mishaps but also the natural disaster to extreme weather conditions, a power outage, health emergencies, and other personal emergencies for safety and security purposes. Hence, we developed "PUO Emergency App" for students on campus that not only provides quick and easy access to emergency services but also enables directcommunication with security officers. The app was designed to be user-friendly and intuitive, allowing students to report emergencies such as accidents, fires, and crimes, as well as providing a panic button for immediate assistance. In addition, the app includes a feature that allows students to request assistance from security officers directly and receive real-time updates on the status of their request. Everything with an app can be managed withjust a button click. When the user activates the panic button, the application will send a distress signal to the emergency services such as guard security and the user's emergency contacts. The signal will include the user's location, allowing the emergency services to respond quickly. This app can shorten the time of assistance in an organization while the polices are on their way to the incidents. So that, victims can be saved before they get worse. This application was developed primarily for usage in corporate settings including offices, hospitals, schools, and faculties. Thus, we made this application mainly to be used at polytechnics. Students' safety is the number one focus in education systems nationwide. Dangerous situations happen unexpectedly and in an instance. It is important to keep not only the students in these faculty safe but, also administrators, lecturers, and all staff members. Particularly at night, as the route from the main entrance to the college is quite dark and silent accordingto my experience at night in the polytechnic. These applications can assist students who walk alone especially girls. In the polytechnic, unfortunate incidents can also occur. These emergencies can occur anywhere and everywhere, whether at the home, office, or could be a collective situation of an area. In these circumstances having an emergency app on a mobile phone would be a great option to help yourself with a push of a button to enhance personal safety and emergency response capabilities.

PROBLEM STATEMENT

The problem is the lack of an effective and efficient means for students to call for help during an emergency or toensure their safety when in polytechnic, especially girls. In the absence of a proper system, students may resort to using conventional means such as making a phone call, sending a text message, or even physically going to the security office. However, these methods may not always be effective or efficient. For instance, making a phone call may take time to connect, and sending a text message may not be immediate. Similarly, physically going to the security office may not be feasible, especially if an emergency is taking place in a different location. Besides,there are several applications available in many countries, but just a few in Malaysia for emergency panic buttonapplications. One of the reasons for this could be a

lack of awareness or marketing efforts by app developers, which may make it more difficult for potential users to discover and download the app. Additionally, some usersmay be hesitant to download and use these applications due to concerns about privacy and security because, majority of the market's emergency applications are lack of authentication pin or password protection, leaving them partially unsecure. Furthermore, students may be hesitant to call emergency services directly due to concernsabout the situation's severity or possible repercussions. Some students may be worried that they are overreactingto a situation and that emergency services may not be necessary. This can lead to hesitation in calling for help, even when it may be the right thing to do. In some cases, students may not be sure if a situation warrants calling emergency services. They may be unsure about the severity of an injury or illness, or they may not know how tohandle a potentially dangerous situation.

So, to address all these issues, the development of an emergency response app that enables students to contact security guards during an emergency is crucial. The app should have a panic button that the student can press to immediately alert the security officers, along with their location data. The app should also provide a two-way communication channel, allowing the security officers to respond to the student's distress signal and provide updates on the progress of their response.

OBJECTIVE

The main objective of this project is to prevent emergencies that occur among students at Ungku Omar Polytechnic. This project aimed to develop an emergency response app for students on campus that can provide quick and easy access to emergency services in the event of a crisis. The app was designed to be user-friendly andintuitive, allowing students to quickly report emergencies such as accidents, fires, and crimes. The app also includes a map feature that shows the student's location and the nearest emergency services, such as hospitals, police stations, and fire stations. The project describes the development and implementation of an emergency response app with a direct link to security guards for students at Politeknik Ungku Omar. The app was designed to provide quick and easy access to emergency services and direct communication with security guards, in order to enhance campus safety and security. The app was designed with user-friendly features such as a panic button and emergency reporting functions. Avoiding emergencies that occur among Politeknik Ungku Omar students isthe main goal of this paper. To develop the app, we conducted a needs assessment survey among students at Politeknik Ungku Omar to identify their emergency response needs and preferences. The emergency response appdeveloped in this project provides a simple yet effective solution to the problem of emergency response on campus at Politeknik Ungku Omar.

MATERIALS AND METHODS

Materials
The application is developed using Google Maps, Firebase, and Twilio, and tested to ensure it meets the requirements, works as intended, and is free from bugs or errors. The application offers an effective solution for individuals who want to enhance their personal safety and emergency response capabilities and can be publishedon the Google Play Store or Apple App Store for easy access.

Methods
The rapid application development method contains four phases: requirements planning, user design, construction,and cutover. The user design and construction phases repeat until the user confirms that the product meets all requirements.

EXPECTED RESULTS AND DISCUSSION

- The emergency response app will provide an effective and efficient means for students to call for help during an emergency. The app will also help campus security guards respond to incidents quickly and efficiently.

- The application is expected to provide an easy-to-use interface, real-time location tracking, and useful features to ensure the student's safety.

- The mobile application is also expected to be reliable, responsive, and efficient. In addition, the application is expected to be highly customizable to meet the needs of different users.

- By providing students with a direct line to campus security, the app is expected to improve safety on campus andreduce response times.

CONCLUSIONS

In conclusion, the development of an emergency response app for students on campus with a link to security guards is expected to provide an effective solution to the problem of a lack of a quick and efficient means to callfor help during an emergency. The app will allow students to report incidents, request assistance, and provide information about their location. The app will also provide access to relevant emergency resources and enable students to connect directly with campus security guards. The app's effectiveness and user experience will be discussed, along with potential limitations and

ways to overcome them. The emergency response app has the potential to improve safety and security on college and university campuses and provide students with a sense of security and peace of mind. With the increasing use of smartphones among students, this app has the potential to be a valuable tool for enhancing campus safety and security. Future work will focus on further testing and evaluation of the app, as well as exploring possibilities for integration with other campus systems and services.

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CampusGO

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ABSTRACT

CampusGO is a mobile application designed to simplify communication between students and wardens by providing a user-friendly interface for students to request permission to leave the campus, apply for extended curfew hours, or request emergency leave. Additionally, the requirement for special circumstances to write a letter to the warden for approval leads tomiscommunication and delays. The ongoing pandemic has highlighted the need for a digital platform to allow students to connect with wardens remotely. The objective of creating an efficient platform is to enhance the overall campus experience by streamlining the process and creating a user-friendly digital platform for students to make requests conveniently while allowing wardens to make informed decisions promptly or reducing delays and ensuring students are not unfairly penalized. The platform will foster a supportive and cohesive campus community and serve as a tool for communication and collaboration between students and wardens. Overall, the objective is to provide students with a seamless and stress-free experience while enabling wardens to manage requests.

Keywords: mobile application, campus, warden, user-friendly.

INTRODUCTION

In the current situation, campus students are expected to abide by the rules and regulations of the university, including curfew hours, guest policies, and safety protocols. Students who stay in the campus are required to arrive before 10 PM, failure to comply with these rules can result in penalties, fines, or even expulsion from campus. So, the application we develop which iscall "CampusGO" is a mobile application designed to help students staying in Campus to communicate with their wardens. This application aims to make the process of requesting permission to leave the Campus, extended curfew hours or in case ofemergency leave from warden.

PROBLEM STATEMENT

The current process of requesting leave and curfew extensions for campus students often involves a lot of paperwork. Furthermore, students with special circumstances may have to write a letter to the warden to obtain approval for an extended curfew, which can be an additional hurdle for these students. This process can result in delayed approvals or even denial of requests, causing further inconvenience for students. As a result, there is a need for a more friendly process for students to communicate with their wardens and request leave and curfew extensions. A mobile application that simplifies and automatesthe process could potentially reduce the amount of paperwork required and make it easier for students to obtain necessary approvals.

OBJECTIVE

The objective of the CampusGO application is to create an platform for campus students to communicate with their wardens and request leave permission, extended curfew hours, and emergency leave in a timely and error-free manner. By providing acentralized platform for communication, the app aims to reduce miscommunication and delays that can occur with the currentprocess of requesting leave and curfew extensions. Additionally, the CampusGO application aims to reduce paper waste by providing a digital platform for requesting leave and curfew extensions. By offering a paperless solution, the app aims to promote sustainability and help minimize the environmental impact of the university's administrative processes. Overall, the CampusGO application seeks to provide a more streamlined and eco-friendly approach to requesting leave and curfew extensions on campus.

METHODS

Waterfall Methods:

1. Requirements
Conduct interviews with students, wardens to identify their requirements and pain points regarding the current system forrequesting leave permissions, extended curfew hours, and emergency leave.

2. Design.
Design a user-friendly interface that enables students to submit leave requests, which includes the reason for the request, the

date, and the time of the planned leave.

3. Development
We will develop the mobile application using a cross-platform development framework.

4. Testing.
We will conduct various testing phases, including unit testing, integration testing, and user acceptance testing, to ensure thatthe application is functioning as expected.

5. Deployment
We will deploy it to a cloud-based server and release it on the app stores for students and wardens to download and use.

6.Maintenance
We will continue to monitor the application and provide maintenance and updates as necessary.

EXPECTED RESULTS

Expected Result 1
The application should have a user-friendly interface that allows students to easily navigate and make their requests without facing any difficulty.

Expected Result 2
The login system should be secure and ensure that only authorized students and wardens can access the application. This willhelp maintain confidentiality and prevent unauthorized access.

Expected Result 3
The application should have a notification system that notifies wardens of incoming requests and messages from students inreal-time. This will enable them to respond promptly and provide timely assistance to the students.

Expected Result 4
The application should provide a feature that allows wardens to respond to student requests and update their status. This will help keep the students informed about the status of their requests and provide transparency in the system.

Expected Result 5
The application should have a database that stores all the necessary information about the students and their requests. This willhelp maintain records and facilitate easy tracking of requests, which will be useful for future reference.

CONCLUSIONS

The CampusGO mobile application has proved to be a highly valuable solution for campus students seeking to communicate with their wardens and make requests for leave, curfew extensions, and emergency situations. Overall, the CampusGO mobile application has emerged as an essential tool for campus life, providing students with a convenient and reliable means of communication that enhances their academic and personal experiences.

ACKNOWLEDGEMENTS

The development team would like to acknowledge the support and guidance of the university's administration in the development of CampusGO. Additionally, the team would like to extend their gratitude to the users who provided feedback and helped to improve the application.

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DOCSSECURE@FINGERPRINT

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ABSTRACT

Docs Secure@Fingerprint is an application which will secure important documents by using biometric authentication as a security method. With this technique, a person's fingerprint is photographed and saved as a biometric template that is used to verify their identification. Once the user has been verified, the secure document or folder can be accessed, and its security controls can be applied. The usage of fingerprint biometric authentication as a secure document management solution is examined in this abstract, along with the advantages of this technology, such as improved security, practicality, and accuracy. It also draws attention to potential issues, such as security and privacy hazards related to the storing of biometric data. The summary of secure document management utilizing fingerprint biometric authentication, which is projected to become more important in the field of document management and information security, is provided at the end of the abstract.

Keywords: biometric authentication, fingerprint, secure, document, privacy

INTRODUCTION

This application will secure documents through fingerprint biometric authentication. Biometric authentication is one of the more secure authentications compared to another authentication such as password and pin. It is because biometric authentication however provides a highly secure and reliable solution for documents. A fingerprint is unique to each individual and its pattern cannot be duplicated or replicated, making it a highly secure form of identification. Fingerprint biometric applications use advanced algorithms to scan and analyze the unique pattern on a person's fingertip, ensuring that only authorized individuals have access to the protected documents. This application will be built by using java. In conclusion this application will provide secure documents to the user.

PROBLEM STATEMENT

DocsSecure@Fingerprint problem statement is to give users a safe and practical means to save, access, and exchange sensitive documents using their biometric data [1]. While conventional document storage techniques like passwords and PINs are vulnerable to security lapses, hacking, and theft, biometric authentication adds an extra layer of security by relying on distinctive physiological traits that are difficult to duplicate or steal [2]. The main problem is creating a trustworthy and precise fingerprint recognition system that can authenticate users in several situations, such as when entering the programme, viewing a document, or sharing a document with another user [3]. When an attacker tries to imitate or fabricate a fingerprint, the system should be able to recognize and stop it. The protection of the biometric data and the privacy and secrecy of the stored documents provide another difficulty. To guard against unauthorized access and information leakage, the application should use robust encryption and secure storage techniques.

OBJECTIVE

In this application, the user would be able to access fingerprint authenticated documents from anywhere in the world with the proposed application. The user would have unlimited access to add, modify, and remove documents. There are no registration requirements for this software, and the owner can use their phone to access the documents directly. Only fingerprint phones utilize this application. DocsSecure@Fingerprint provides a secure and convenient way for users to store, access and share sensitive documents using their biometric information. Besides that, we can develop a reliable and accurate fingerprint recognition system that can authenticate users in a variety of scenarios while detecting and preventing spoofing attempts. This application also ensures the privacy and confidentiality of the stored documents and biometric data by using strong encryption and secure storage mechanisms. Finally, DocsSecure@Fingerprint enables users to easily and quickly access their documents using their fingerprint without the need for passwords or PINs.

MATERIALS AND METHODS

Uses a finger scanner where a hardware device that can capture and recognize fingerprint accurately. Biometric Authentication to ensure only authorized users can access the stored documents.

EXPECTED RESULTS AND DISCUSSION

The security of Docs Secure@Fingerprint provides a secure and convenient way to store and access sensitive documents. The application allows user to quickly access their documents without having to remember complex passwords or going through time consuming authentication processes.

CONCLUSION

In conclusion, Docs Secure@Fingerprint is a valuable tool for enhancing the security and confidentiality of sensitive documents. The application ensures that only authorized users can access the protected documents. It prioritizes the security and privacy of their sensitive documents.

ACKNOWLEDGEMENT

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PASSWORD MANAGER APP

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ABSTRACT

The password manager app provides users with a secure and convenient way to manage their passwords for various online accounts. This app itself will be given different name which is pass guardian. This web base app will use robust encryption measures to protect user data and ensure that passwords are stored securely. Additionally, the web app will allow users to create complex and unique passwords for each account and retrieve them easily when needed. The web app will also provide features such as password generation, password strength analysis, and two-factor authentication to enhance account security. This web app will be developed using the waterfall methodology.

Keywords: secure, manage, password.

INTRODUCTION

In today's digital age, people are increasingly reliant on online accounts and passwords to access a variety of services, ranging from email and social media to online banking and shopping. However, with the proliferation of online accounts, remembering passwords can be a daunting task. As a result, many people resort to using simple and easy-to-guess passwords or reusing the same password for multiple accounts, which can compromise their security.

To address this issue, password managing apps have become a popular solution that allows users to store and manage their passwords in a secure and convenient manner. The objective of this report is to present a password managing app that provides users with an effective and user-friendly way to manage their passwords. This report will describe the app's features, including password generation, password strength analysis, two-factor authentication, and data encryption, to enhance the security of user accounts. The report will also provide an overview of the app's user interface and user experience, highlighting its ease of use and intuitive design. Overall, the password managing app presented in this report aims to provide a reliable and secure solution to the password management problem, while also providing a seamless user experience.

PROBLEM STATEMENT

The widespread use of online accounts has led to a growing concern regarding the security of user passwords [1]. Many people tend to reuse passwords or choose easily guessable passwords, which makes them vulnerable to cyber-attacks. This practice poses a serious security risk to users and their online data. Furthermore, the lack of knowledge about password security best practices adds to the problem, making users more susceptible to phishing attacks and other forms of cybercrime. In addition to this, the habit of reusing passwords or using weak passwords can lead to a situation where users waste their time resetting passwords or searching for lost account information [2]. This can be particularly frustrating for users who have multiple online accounts with unique passwords [3]. Keeping track of all these passwords can be a daunting task, especially if the passwords are not well-organized or if users forget them. To address these issues, a password manager app can provide a solution. A password manager app can help users create strong, unique passwords and store them securely. By using a password manager app, users can avoid the habit of reusing passwords or using weak passwords. They can also manage their passwords more efficiently and reduce the risk of wasting time resetting passwords or searching for lost account information.

OBJECTIVE

The objective of this project is to develop a password manager app that offers a secure and user-friendly solution for managing multiple online accounts. The web app will employ robust encryption measures to protect user data and ensure that passwords are stored securely. It will allow users to create unique and complex passwords for each account, retrieve them easily when needed, and analyze password strength. The web app will also provide additional features such as password generation and two-factor authentication to enhance account security. The goal is to create a reliable and convenient password management solution that meets the needs of users who want to simplify and streamline their online security practices.

METHODOLOGY

The waterfall paradigm, which includes requirements, design, development, testing, maintenance, and deployment, is used to construct this programmed. Python and HTML will be our primary coding languages. Django and Visual Studio Code are the tools that will be utilized. The encryption used for the security aspect was the advanced encryption standard (AES).

EXPECTED RESULTS

The expected result of a password manager is to provide secure and convenient management of password that is safe to use. Features and benefit that users typically expect from a password manager are list as below:

1. **Password Storage**
   - The password manager securely stores all password in an encrypted format to protect it from unauthorized access. User only need to remember their username and password to login to the app. So, they can access to their password that already stores in it.

2. **Password Auditing**
   - This password manager offers password auditing features that analyze the strength and security of the existing passwords. It can identify weak or reused passwords and will tell the user the criteria needed to create a strong password for better security.

3. **Strong Password Generator**
   - Password manager should have the ability to generate a strong and unique password for each user account. These passwords are typically long, complex, and random, that make the hacker difficult to guess or crack the password.

Overall, the expected result of password manager is simply to protect the password and enhance the password management while provide a strong security measure to protect it from unauthorized access.

CONCLUSIONS

In conclusion, a password manager is an essential tool for securely managing and organizing passwords. They offer convenience, enhanced security, and peace of mind in today's digital age. If using password manager helps you with management of password because people now days have many accounts that needed password to create an account, so people usually create an easy password that they can remember. With password manager, you can improve the security of your online accounts and safeguard your sensitive information.

ACKNOWLEDGEMENTS

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G PASSWORD EASY

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ABSTRACT

G PASSWORD EASY is developed to make it easier for users to remember their password and login ID. It works as a password and login ID storage app. The web-based G PASSWORD EASY has a functionality that allows them to keep their secure password logins to enter websites, other services, and application on their mobile device. In addition, users can minimize errors resulting from their carelessness by forgetting password. This Web-based development is to assist users in keeping their account safe and to ease users who always forget their password. This web-based requires the end-user to set up his/her application credential which contains the master password to gain access to the web. This web-based will also offer user a generate strong and secure password. This web-based will be developed using the prototyping methodology. G PASSWORD EASY is expected to be released for free on the website. The unique feature of web-based can store unlimited data login ID and password for all users. As a result, it can frequently offer safety of user's credential information.

Keywords: password, login ID, web-based

INTRODUCTION

In the current digital age, the number of online services and platforms we use has increased significantly. This is leading to the need to create and remember unique passwords and usernames for each platform. To address this challenge, G PASSWORD EASY offer a secure web based and easy-to-use solution. G PASSWORD EASY allows you to keep all your password logins for various websites, services, and applications in one secure place. This web-based also can generate strong and secure passwords and organize them as per your preference. This feature saves your time and effort while ensuring that your passwords are safe and accessible from multiple devices. G PASSWORD EASY is a great solution for anyone to keep track of their online security and streamline the password management process.

PROBLEM STATEMENT

The challenge of creating and remembering unique passwords and usernames for each platform in today's digital age [1]. This leads to a high risk of forgetting passwords, reusing them, or using weak passwords, which can result in cyber-attacks. According to [4], many people still use weak or easily guessable passwords, such as "123456" or "password," making them vulnerable to cyber-attacks [5]. Furthermore, managing multiple passwords across various devices and platforms can be time-consuming and overwhelming. According to [3] this can lock you out of critical programs or platforms, reducing productivity and wasting time. So, G PASSWORD EASY addresses these challenges by offering a secure and user-friendly password management solution and allows registered users to store all their password logins in one place, accessible from multiple devices. It also offers the option to generate strong and secure passwords [2].

OBJECTIVE

The main objective of this project is to provide ease of use for users who frequently forget their login credentials and to assist users in keeping their online accounts secure. In addition, the other objective is to reduce user frustration and wasted time caused by having to remember many login IDs and passwords. G PASSWORD EASY provides a safe storage area accessible with a master password that enables users to quickly access their login information without having to remember it, which increases productivity and efficiency. Moreover, the other objective is to solve the online account security, which is the concern of internet users. With the rise of cyberattacks and data breaches, it is more important than ever to keep login IDs and passwords secure from unauthorized access. G PASSWORD EASY provides a secure storage location that is encrypted and accessible only with a master password which will reduce the risk of unauthorized access to user accounts.

MATERIALS AND METHODS

For methods, it will involve software development processes which is iterative model, including requirements gathering, design, implementation, testing, and deployment. For the materials, this web-based would use programming languages such as Python and utilize development tools like Visual Studio Code. For security terms, encryption algorithms such as Advanced Encryption Standard (AES) and hashing techniques are used to secure passwords and ensure that cannot easily be accessed by unauthorized individuals. Testing would involve both functional and security testing to ensure the tool meets the requirements and is secure against potential attacks.

EXPECTED RESULTS AND DISCUSSION

G PASSWORD EASY is a comprehensive and user-friendly web-based that has been created specially to answer common password management problems experienced by users, such as trying to remember and manage various online account passwords. This significant project allows users to create strong and secure passwords for their online accounts, eliminating the need for users to create their own complex passwords. It also offers a simple interface to manage passwords. This web- based allows users to store multiple passwords for any online account, making it easier for users to manage their online accounts and save time and effort. Additionally, this web-based provides improved security measures for protecting user passwords, ensuring users feel confident that their online accounts are safe and secure. The various features of web-based, including user-friendly interface, password creation tools, and strong security measures, will be discussed in this conversation. We'll also look at how it may help users by giving them a simple and safe password management solution.

CONCLUSIONS

G PASSWORD EASY is a password manager that makes it easy for users to manage their passwords. This web-based minimizes errors caused due to writing down the passwords or forgetting passwords. It is user-friendly and can be used by users, whatever they do in their field of work. It offers features like multi-factor authentication and encryption to enhance online security. Overall, G Password Easy is a great solution for simplifying the process of login ID account and password management.

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AR HUB @ PUO (JTMK)

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ABSTRACT

Augmented reality (AR) technology has received much attention in recent years which makes the AR research community has been developing a manifold of ideas and concepts to improve the depiction of virtual objects in a real scene. To essentially ease the perception of navigation and to naturally interact with the pervasive computing landscape, the required AR equipment must be seamlessly integrated into the user's natural environment. Using Global Positioning System and AR technology, our AR Hub @ PUO (JTMK) mobile application gives a virtual navigation guide that helps students and visitors to navigate towards certain venues, showing them the best and shortest route, which would be highlighted by an AR directional arrow along with other convenient features such as a virtual lab booking system and a virtual student card feature.

Keywords: Augmented Reality, navigation system, mobile application.
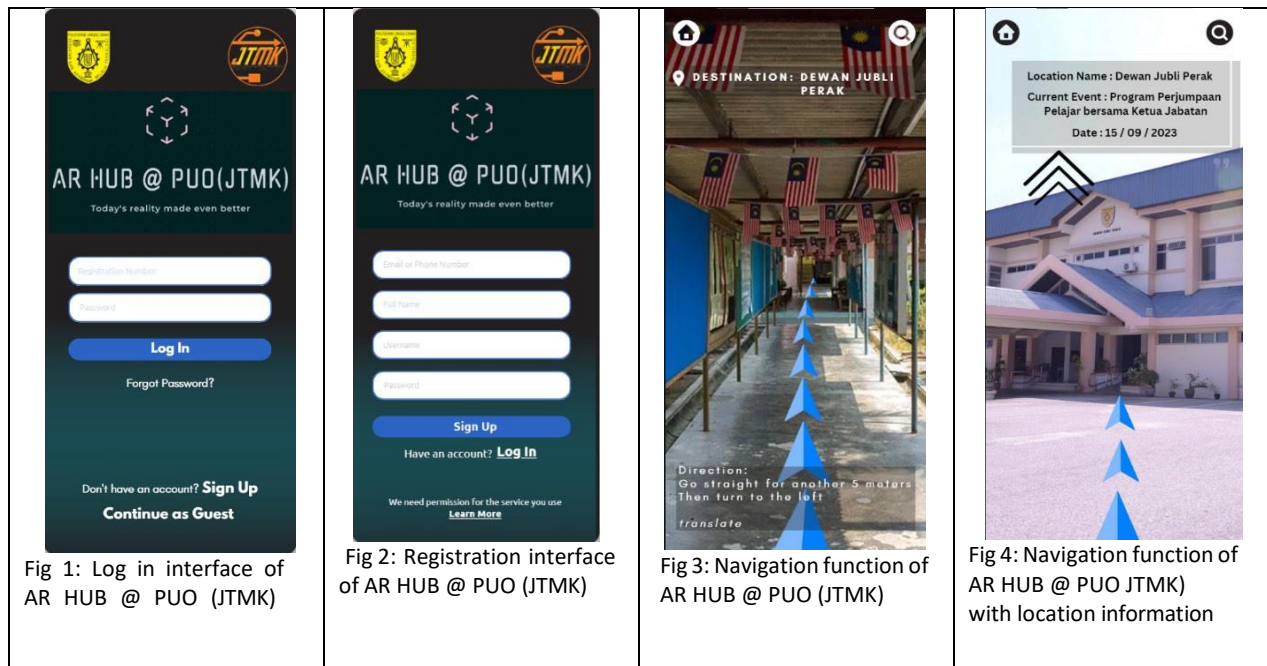
INTRODUCTION

The IT Department at Politeknik Ungku Omar (PUO) has grown rapidly in recent years, leading to an increase in the number of students, lecture halls, and labs. Consequently, it has become challenging for new students and visitors to efficiently navigate the campus and manage resources. To address this issue, we propose AR Hub @ PUO (JTMK), an augmented reality navigation app that aims to simplify navigation and improve resource management at PUO's IT Department. This app is an AR navigation app designed to assist IT students at Politeknik Ungku Omar (PUO) in finding labs, lecture halls, and specific lecturer's rooms. This app aims to provide a user-friendly and interactive way to navigate the campus, enhance the learning experience, and improve lecture hall management. Additional features include a virtual student card, AR-based building information, and an integrated room booking system for lecturers [4]. Hence it acts as a hub where multiple students and staff members of Politeknik Ungku Omar could utilize while being in the ICT Department.

PROBLEM STATEMENT

The ICT Department of Politeknik Ungku Omar is the backbone of technological advancements and innovation on campus. However, like any other department, it has issues which could be resolved to help the students, lecturers, and visitors of the department. The first issue is the difficulty in finding the nearest lab, lecture hall, or a specific lecturer's room. This issue arises due to the large size of the Politeknik campus, and the average group of students and faculty members present. Based on observations and surveys carried out [5] on the new students of Politeknik Ungku Omar, we found out that students and lecturers often find themselves wandering around campus, searching for the correct location, which leads to delays and frustration. The second issue is the inefficient facility management in booking labs and lecture halls such as booking vacant rooms and keeping track of available facilities [1]. Politeknik Ungku Omar has limited resources and managing them can be a complex task for lecturers. Consequently, inefficient management can lead to wastage of resources and underutilization of facilities according to chief of facility unit who is responsible for the facilities of ICT Department. The third issue is the inconvenience of losing or misplacing student cards [2][3]. Student cards serve as identification and access to certain areas and services in campuses if Politeknik Ungku Omar. Losing or misplacing them can result in restricted access, which can affect a student's academic progress.

OBJECTIVE

The AR Hub @ PUO (JTMK) is an application that aims to address the challenges faced by the ICT Department, students, and lecturers at Politeknik Ungku Omar. The primary objective of this project is to provide a reliable, user-friendly, and interactive navigation system that enables IT students and lecturers to easily find the nearest lab, lecture hall, or a specific lecturer's room. This project uses AR technology to provide real-time navigation guidance, enabling users to find the location they need quickly and easily. This AR technology allows students and lecturers to see directions overlaid onto their smartphone's camera view, making it easy to navigate even in unfamiliar areas. The second objective is to efficiently manage resources by booking vacant rooms and accessing real-time information about available facilities. This incorporates a resource management system that allows users to view available facilities, book vacant rooms, and manage their schedule. This system can help to prevent scheduling conflicts and ensure that resources are utilized efficiently. The third objective is to create a virtual student card to mitigate the inconvenience of losing physical cards. This project enables students and staffs to access a virtual ID system, which acts as an alternative to physical student cards. With this application, users can access restricted areas and services on campus without getting into any trouble.

Fig 1: Log in interface of AR HUB @ PUO (JTMK)

Fig 2: Registration interface of AR HUB @ PUO (JTMK)

Fig 3: Navigation function of AR HUB @ PUO (JTMK)

Fig 4: Navigation function of AR HUB @ PUO JTMK) with location information

MATERIALS AND METHODS

Materials

Unity with Android Plugins, ARCore extension by ARFoundation, Maya and Blender, smartphone camera, Visual Studio

Methods

- Identifying and mapping all locations of within PUO's ICT Department, including labs, lecture halls, and lecturer's rooms.
- Setting up a development environment with Unity and ARCore.
- Plan the integration of map data or navigation points for real-time directions.
- Collecting and integrating data on room occupancy and availability to create a real-time resource management system.
- Developing AR-based navigation features, including a user-friendly interface, 3D maps, and AR markers to guide users to their desired locations.
- Implement basic functionalities, such as camera access, scene rendering, and AR tracking using C# programming language.
- Creating a virtual student card system for secure and convenient access to campus services.
- Developing a room booking system for lecturers to manage resources efficiently.
- Conducting usability testing to gather user feedback and improve the app's functionality and design.
- Test the app on various Android devices to verify ARCore compatibility.

EXPECTED RESULTS AND DISCUSSION

The AR HUB @ PUO(JTMK) helps improve navigation efficiency and reduced time spent searching for locations on campus for our target users. This project will allow students and faculty members to find the location that they need to attend quickly and effortlessly, reducing the time and effort required to search for classrooms, labs, and other campus facilities. This improved efficiency can lead to a more productive and stress-free campus experience. The lecturers of Politeknik have a laboratory booking management by acquiring real-time information on room availability and enabling the lecturers to book vacant rooms. The resource management system integrated into the AR Hub will enable lecturers to view available facilities, book vacant rooms, and manage their schedule, ensuring that resources are utilized efficiently. This feature can lead to more effective and productive use of campus facilities and services.

Subsequently, the students are offered a more convenient and secure solution for those who lose their physical cards by providing a virtual student card. The AR Hub's virtual student card feature will provide a convenient and secure solution for students who lose their physical cards, enabling them to access restricted areas and services on campus seamlessly. This feature can prevent the inconvenience and frustration of losing a physical card and improve the overall campus experience for students. The AR HUB @ PUO(JTMK) increases user satisfaction with the campus experience through interactive AR-based navigation features and information. The AR Hub's interactive and immersive features can enhance the campus experience for students.

and faculty members, providing them with a new and engaging way to navigate the campus, access information, and interact with the environment. This can lead to increased satisfaction with the campus experience and a more positive perception of the university.

CONCLUSIONS

This application enables our target users to easily grasp computer-generated digital information. As this information is primarily presented via virtual geometric objects seamlessly placed in the real world, likewise the offered interaction possibilities appear to be exciting. We are sure that AR Hub @ PUO (JTMK) holds the potential to revolutionize navigation and resource management at Politeknik Ungku Omar's IT Department. By leveraging AR, this app aims to improve the overall campus experience for students and lecturers, streamline lab and lecture hall management, and provides a solution to all the issues faced by the PUO community.

ACKNOWLEDGEMENTS

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THE JTMK AR-BOARD

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ABSTRACT

Augmented reality (AR) is an emerging technology that integrates digital information into the physical world, creating a new and immersive experience for users. The JTMK AR-Board with QR Code is a cutting-edge project that uses AR technology to bring classic bulletin boards to life. It's developed exclusively for the ICT department in Polytechnic Ungku Omar, this JTMK AR-Board offers a more engaging and dynamic means of exchanging knowledge. With the AR-Board, the authorized ICT administrator can construct and personalize their boards for a variety of purposes, such as advertising, information exchange, and community participation. The inclusion of QR codes enables quick access to the board's content, making it an efficient method of communication and collaboration. Moreover, the JTMK AR-Board encourages sustainability and waste reduction by eliminating the need for physically updated announcements and paper resources. The JTMK AR-Board with QR Code represents an exciting application of AR technology, providing an innovative and interactive way to share information while reducing environmental impact.

Keywords: Augmented reality, AR-board, QR code, JTMK, ICT

INTRODUCTION

The use of Augmented Reality (AR) applications in numerous fields has increased rapidly as technology has advanced [1]. The usage of augmented reality technology has allowed for the enhancement of user experience by providing them with an interactive and immersive environment. The JTMK AR-Board with QR Code is one such application of AR technology that attempts to bring traditional bulletin boards to life by providing a more engaging and dynamic means of sharing information. The JTMK AR-Board allows users to build and customize their boards for several purposes such as advertising, information exchange, and community participation. The boards offer a few digital media alternatives, such as photos, 3D models, and other multimedia information, to enhance the user experience [2][3]. The QR code system in the JTMK AR-Board is simple and can be scanned by anyone using ICT's lab who wants to stay up to date on the latest news and announcements, allowing quick access to the board's content. The JTMK's AR-Board with QR code uses a secure login system to ensure that only authorized users may access and change the board's information. This function is crucial for protecting the board's information and guaranteeing its proper use [4]. It plans to develop an AR application that is specifically tailored to ICT's needs, utilizing QR codes to provide a more personalized and efficient means of communicating and cooperating.

PROBLEM STATEMENT

The obstacles that each department at Polytechnic Ungku Omar faces is a deterrent to its growth and success, and the ICT department is no exception.

The first obstacle is the difficulty for the students and lecturers in ICT departments to physically alter the advertising, information sharing, or community involvement content on a standard bulletin board. When the content of an information sharing or advertisement changes such as when an event advertisement expires and must be withdrawn off the ICT bulletin board, it is bothersome.

The second obstacle is the traditional ICT's bulletin board for messages has limited sustainability and necessitates a substantial amount of paper and other physical resources, contributing to waste and environmental problems. Printing is quite expensive, especially in color. Some notices necessitate a larger piece of paper to exactly accommodate the content, resulting in a large space on the bulletin board.

The third obstacle is the physical notifications, advertising, information exchange or community participation on ICT's traditional bulletin boards frequently lack interactivity and multimedia capabilities making it difficult to captivate and maintain the students and lecturers' attention.

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OBJECTIVE

The JTMK AR-Board outlines a clear and attainable goal that will aid in overcoming hurdles and improving the overall performance of the ICT department. The JTMK AR-Board aims to deliver a more engaging and dynamic experience for students and lecturers in the ICT department by incorporating the AR technology multimedia capabilities such as photos, videos, 3D photos other multimedia information to improve communication and knowledge retention.

The second objective of the Polytechnic Ungku Omar is to reduce their environmental impact by replacing physically updated notices and paper materials with digital technologies. This will not only benefit the ICT department but also other departments in the institution. The JTMK AR-Board with QR Code is proposed as an effective solution to provide students and lecturers with up-to-date information in an eco-friendlier manner. The use of digital technologies will not only reduce paper consumption but also make information more accessible and attractive to students and lecturers. This aligns with the ICT department's mission to build a sustainable and environmentally friendly environment.

The third objective is creating an interactive JTMK AR- Board application that incorporates AR technology allowing authorized users (ICT Administrator) to update and amend advertising, information sharing, and community interaction material without requiring physical adjustments to the AR-Board. By creating this application with a comprehensible and simple user interface, the JTMK AR-Board administrator can remotely manage the content of the JTMK AR-Board. This solution eliminates the need for frequent physical updates, which can be time-consuming and expensive, and allows the JTMK AR-Board administrator to keep the JTMK AR-Board's content current.
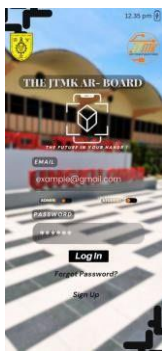

Fig 1: Login Interface   Fig 2: Signup Interface   Fig 3: Admin Interface   Fig 4: Student / Lecturer Interface   Fig 5: Admin make any changes   Fig 6: Student / Lecturer make no changes

MATERIALS AND METHODS

1. Requirement gathering analysis.
   This phase includes determining objectives of the application that is going to build. Also, involves the fact-finding process to gather all the information's about the ICT department where needs to interact with publishing unit to develop The JTMK AR Board application.

2. Outlining the basic design phase.
   To produce design, create a simple and easily understandable design for the application.

3. Research and prepare the tools going to be used.
   Aim to build an augmented-reality application, for that have to determine the software going to use to build The JTMK AR Board application. The tool we are going to use Unity and Visual Studio.

4. Implementing User Evaluation.
   In this phase, assess usability of the application by collecting feedback from the users. By engaging in this activity, it will aid in comprehending the functioning of the application as well as understanding the viewpoints and requirements of the users that the application must accommodate.

5. Producing refined applications.
   Come out with an application that meets user satisfaction and has no errors or drawbacks, resulting in the final product being developed.

6. Maintain and improve application availability.
   At this stage, the proper operation of the application is scrutinized to ensure it runs smoothly without any interruptions and performs optimally.

EXPECTED RESULTS AND DISCUSSION

1. Enhanced learning experience
   Enhanced learning experience: Students can interact with course materials in fresh and creative ways with the aid of AR technology. Students might be able to access 3D representations of difficult ideas, watch videos of experts explaining course material, or investigate interactive simulations of real-world situations by using The JTMK AR board, as an illustration. This can help them comprehend the course material and provide better learning results.

2. Better communication
   AR technology can give staff and instructors a new approach to convey crucial information to students. For instance, a campus map, an event schedule, or a list of essential notices might all be displayed on The JTMK AR Board. By doing this, you can guarantee that students have access to current, pertinent information in an appealing visual style.

3. Increased engagement
   Students may be more inclined to interact with the materials offered if AR technology is integrated into a bulletin board. Their motivation and interest in the material may rise as a result, improving learning outcomes.

4. Important data insights
   Faculty and staff can learn more about how students interact with course materials by monitoring user interactions with the AR content. This can assist in guiding instructional tactics and identifying areas that might benefit from additional support.

CONCLUSIONS

In conclusion, university instructors, students, and staff can greatly benefit from an AR-enabled bulletin board. Students can interact with course materials in fresh and creative ways by incorporating AR technology into a bulletin board, which will boost learning results. With the help of technology, faculty and staff may give students critical information in an entertaining visual manner while simultaneously learning important information about how students interact with the course materials. Additionally, it is feasible to offer a competitive edge in luring new faculty members and students. A crucial tool for any university faculty looking to innovate and remain ahead, AR-enabled bulletin boards may enhance the classroom experience, boost collaboration, and give insightful data.

ACKNOWLEDGEMENTS

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