POLITEKNIK BANTING SELANGOR

i-TOOLS LEARNING APPS

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DEPARTMENT OF AIRCRAFT MAINTENANCE

SESSION 2 2022/2023

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A REPORT SUBMITTED TO DEPARTMENT OF AIRCRAFT MAINTENANCE IN PARTIAL FULFILMENT OF THE REQUIREMENTS FOR A DIPLOMA ENGINEERING IN AIRCRAFT MAINTENANCE

SUPERVISOR:

MR. MOHD ZULFAZLI BIN RAUB KHAN

REPORT ENDORSEMENT

This report is being submitted, reviewed, and endorsed to fulfill the conditions and requirements of report writing as specified.

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CERTIFICATION OF PROJECT ORIGINALITY & OWNERSHIP

I-TOOLS LEARNING APPS

SESSION: MAY 2023

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"We hereby declare that this report is the result of our own work, except excerpts that we have outlined its sources and this project will be the ownership of polytechnic.

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SIGNATURE: WRITER 2

SIGNATURE: WRITER 3

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DATE: 2/6/2023……..

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ABSTRACT

The objective of this project is to develop a mobile application that serves as an educational tool for students to enhance their knowledge of various tools used in the field of aircraft maintenance. The app aims to provide an interactive and engaging learning experience, allowing students to familiarize themselves with different tools and their applications. The app's interface is designed and developed using various software application such as microsoft power points, i-Spring, Canva and WordWall. The app offers a range of features, including detailed descriptions and visual representations of tools, interactive quizzes to assess knowledge retention, and supplementary resources such as videos and reference materials. The content is organized into modules, allowing users to navigate through different tool categories and progress at their own pace. To evaluate the effectiveness of the app, a quantitative study involving a sample group of students has been conducted. The study will assess the app's usability, effectiveness in enhancing students' tool knowledge, and overall user satisfaction which contributes to 91.7% of total respondents. The app has the potential to enhance the learning experience, bridge any gaps in understanding, and provide students with a practical and engaging tool for self-directed learning.

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3.4 LIST OF MATERIALS & EXPENDITURES

No	Items	Unit	Price/Unit	Total (RM)
1	**PowerPoint**	**1**	**RM0.00**	**RM0.00**
2	**Canva**	**1**	**RM0.00**	**RM0.00**
3	**Website To Apk Software**	**1**	**RM0.00**	**RM0.00**
4	**Subscribe WordWall**	**1**	**RM10.00**	**RM10.00**
5	**I-Spring Suite**	**1**	**RM6.99**	**RM6.99**
	GRANT TOTAL			**Rm16.99**

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LIST OF ABBREVIATIONS

iTLA	i-Tools Learning App
App	Application
VTE	Vocational and Technical Education
FRN	Federal Republic of Nigeria
HVAC	Heating, Ventilation and Air Conditioning
CAD	Computer Aided Design
AEM	Aero Engineering Management
AEP	Aero Engineering Practical
AMOLED	Active-Matrix Organic Light-Emitting Diodes
IPS	Intrusion Prevention System
LCD	Liquid Crystal Display
OLED	Organic Light-Emitting Diodes
LED	Light-Emitting Diodes
TFT	Thin Film Transistor
CTA	Call To Action
APK	Android Application Package

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CHAPTER 1

INTRODUCTION

1.1 BACKGROUND OF STUDY

The concept of apps is not new. There is an app for practically everything these days, from online learning to watching movies and television shows to shopping and gaming. Mobile app development has expanded dramatically as a result of the rise in mobile usage and the development of mobile technology. Speaking of technology and smartphone apps, they have also completely changed how people teach and learn (take the Craftsman tool – a Workshop Tool learning app, for example). The only place for classes, lectures, and seminars is the classroom now. The education sector is changing as students move away from paperback books

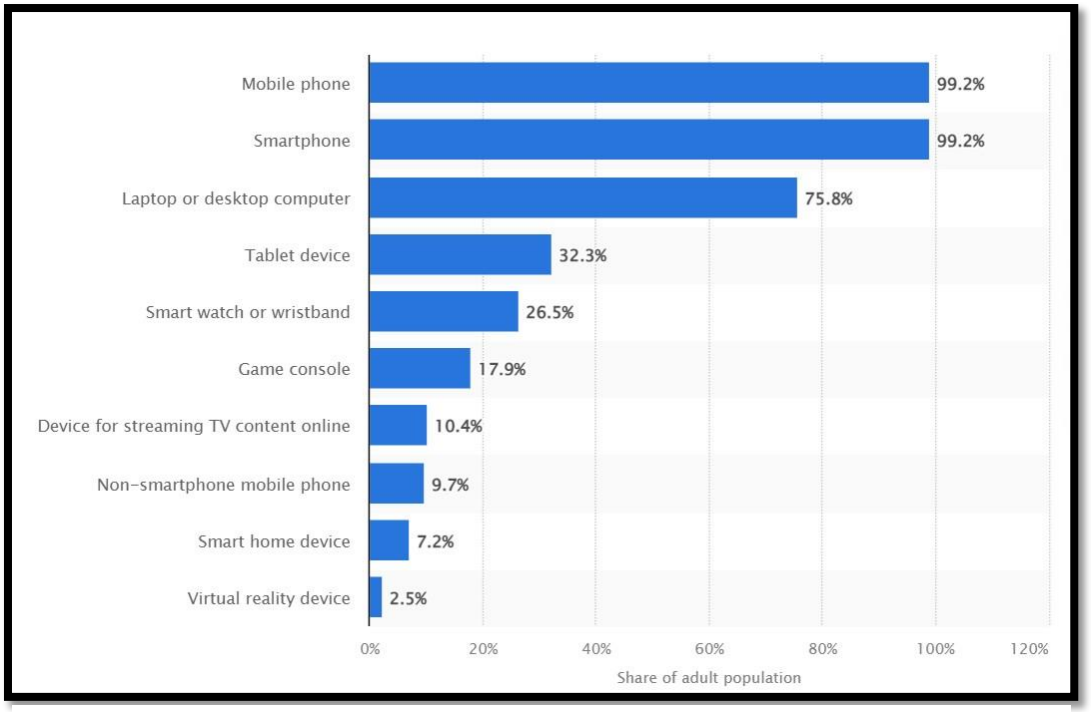


Figure 1.1: Statista Research Department

and toward digital ones, favor online classes more frequently than physical ones, and complete a variety of courses digitally.

"As of the third quarter of 2020, around 99.2 percent of the population aged 16 to 64 in Malaysia were users of mobile phones. In comparison to its neighboring countries, Indonesia and Singapore, Malaysia led the mobile smartphone ownership rate." (Statista Research Department, Oct 5, 2022). Based on the statement above it is stated that our country, Malaysia has been ranked as the most population that the teenagers owned a mobile phone. It is also means that the E-learning is gradually taking over the traditional modes. The pandemic has given an immense boost to online education. School and colleges have started giving tasks that require the use of mobile phones. That's where educational apps enter the game.

Therefore, an education app platform is all about integrating learning management systems and technologies to offer a customized, end-to-end learning solution. In other words, an educational app is a software that enables and encourages virtual teaching, especially self-learning. An educational app helps individuals with remote learning of any kind. Today, educational apps are used by school kids, college students, and even professionals. Furthermore, there are milions of mobile learning app that can be download and use as of for now in the world. One of the mobile learning app is the tooling apps. Tooling apps are not specified and more about general tools. To help students to understand about tools, specifically for engineering students, we develop a mobile learning app for workshop engineering tools and improvised, redesign, and gives it more feature so that students will attract to use it and help them to do better self-learning and understanding.

1.2 PROBLEM STATEMENTS

Vocational and Technical Education (VTE), which is typically offered at the senior secondary or lower postsecondary level, is a component of education intended to educate students for industry, agriculture, trade, and home economics. Federal Republic of Nigeria (FRN) (2004) defined technical education as a component of education that contributes to the acquisition of fundamental scientific knowledge, practical and applied skills, and both. This makes it a practical area of education that involves skill development. Technical education falls under the category of vocational education. Similar to this, vocational education can also be thought of as training intended to get people ready for careers as semi-skilled or skilled workers,

technicians, or sub-professionals in established fields as well as in new and emerging fields, or to get people ready for enrollment in advanced technical and vocational programs.

With the economy being more globalized than ever, it is important to have background and a skill set that allows graduates to become immersed in the global economy right from graduation. It is important for these students or graduates to have skills in innovation and technology education to be ready to fit into the global market place on which today's economy depends on. Politeknik in Malaysia offers courses that can teach practical skills as how it should be fit in the economy system. To help all the students grow, we design a mobile learning app for engineering students and more specifically for Aircraft Engineering Students to make them understand better about all the tools and equipments that they use and will use in the industry. It is important to keep the practical and theory knowledge balance to fit the economy current demand of workers in Malaysia.

Most app that already in market or created are not suitable enough for aviation industry. Aircraft Engineering student having the problems of lack of innovation and mobility for them to do self-learning and help them with their learning process. They also tend to having issue about lack of resources and accessibility about their workshop tools. The existing product that exist is not appealing enough to attract student.

1.3 PROJECT OBJECTIVES

1.3.1 General Project Objectives

This project objectives are:

- To design an application for aircraft engineering students.
- To improve the quality of learning and help students to have better understanding about all the workshop tools specifically for aircraft engineering students.
- To demonstrate on how to use all the tools and the function.
- To help students make an easy access to online study materials and decreased the gap between students and lecturer

1.3.2 Specific Individual Project Objectives

1.3.2.1 Introduction Layout

This project aimed:

- To make it simple, and easier for students to understand and recognize the tools.
- To make it easy for students to find all the tools that they need and have availability to anytime and anywhere
- To attract more students to use it with a responsive design and suitable for learning purposes.

1.3.2.2 Interface Layout

This project aimed:

- To let students have fun using it with the up-to-date design of layout and color.
- To promote a higher rate of engagement and motivation for students.
- To make sure students have easy, enjoyable and effective interactions between students and the apps.

1.3.2.3 Storyboard

This project aimed:

- To help students keep track of their studies.
- To visually guide students throughout the learning process.
- To simplified every stage of learning for the students.

1.3.2.4 Software Designation

This project aimed:

- To help the to achieve better grades for their test, assignments, examinations and handle other time-consuming processes.
- To give organize content and access to it.
- To help reduce the cost of education cost for the students.

1.4 SCOPE OF PROJECT

1.4.1 General Project Scopes

Firstly, this product available only for Aircraft Engineering students because other engineering students already have their own application that they can refer to and use. However, this engineering workshop tools are user friendly and available for every student to download despite their current study course that they take.

Furthermore, this Workshop Learning App only can be display in portrait mode only and more focus to android phone users only. This app takes learning flexibility to another level by making instructional content like videos, multimedia formats available on smartphones or devices. Students have an added advantage of accessing the content wherever and whenever they want. Mobile learning effortlessly incorporates learning into the learner's everyday routine, which promotes successful course completion and knowledge and improve learning

1.4.2 Specific Individual Scopes

1.4.2.1 Introduction Layout

This Workshop Learning Tools App will be focusing on the interesting layout that can attract more student to use it and make this app as their favourite app to use for learning about all the workshop tools. The introduction layout is more focused on simple and eye catchy tone colour for the background, font, and style. The headers are include a distinct headline followed by two-line description.

1.4.2.2 Interface Layout

The scopes for interface layout are that all contents and all the details are specifically for aircraft engineering students only. All details, the function, limitation for each tools , types will followed exactly like the one that lecturer use for teaching and it will be detail out as specified in the learning scopes for Aircraft's Engineering Course scopes so that the students can just take directly and learn from the app and use it without any worries or mis-used for further learning.

1.4.2.3 Storyboard

This app are mostly use photo/diagram as content and only applicable on the size of portrait mode. The storyboard is quite simple and can convince student to use it frequently. It is simplified every stage of learning process and make it faster for student to understand. It is also strictly straightforward about the content and context.

1.4.2.4 Software designation

For software itself, it is only available for android users only. It may sound quite unfair for the IOS users but for the IOS itself they already have their own specific app that they can download and use. This app is design not only for learning purposes but for teaching as well. There are few parts that will be developed for teaching so that students can achieve better grades for their test, quizzes, assignment, and examination. It is design with organize information regarding learning tools and easy for students to access. This software is built to have 24/7 availability which means can be access anytime anywhere.

1.5 PROJECT IMPACT

The impact that we can develop from this project that we get to ease the student on understanding better on how to do their task during workshop regarding of the tools and equipment. Also, lectures doesn't need to explain the basic knowledge about tooling for many times. Students or user can understand the basic knowledge of tooling without depending too much on lecturers.

CHAPTER 2
LITERATURE REVIEW

2.1 GENERAL LITERATURE REVIEW

2.1.2 Education Industry in Malaysia

Education refers to the discipline that is concerned with methods of teaching and learning in schools or school-like environments, as opposed to various nonformal and informal means of socialization. Students and lectures usually related with education. There is various type of learning method nowadays. Students face lots of difficulty back then in the 90's accesing information about their study because during that era there were no evolution of the internet and their having lot of difficulties with studying since the only information they can get only using their books. Following the development of education, those difficulties only occurs for the those who only live in the 90's. But nowadays we live in a modern era which provide internet and lot of education method that can be used in our industry. Education became more effective to students since there is a lot of methods to use to ease their study

2.1.2 Workshop Explanation

A workshop can be a room, rooms, or building that offers both the space and equipment (or machinery) that may be needed for the creation or repair of manufactured items, as during the Industrial Revolution era. Up until the introduction of industrialization and the establishment of larger factories, workshops were the only centres of production. A workbench, hand tools, power tools, and other hardware are commonly found in home workshops. Workshops are frequently used to experiment and create prototypes in addition to the practical use of fixing things. The Machine Shop (metal work), the Fitting Shop, the Foundry, the Smithy, the Welding Shop, the Carpentry Shop, and the Motor Vehicle Repair Unit and Service Facility make up the Engineering Workshops. There are two primary purposes for the Engineering Workshops. First, its facilities and resources are put to academic use in the instruction of engineering undergraduates. For undergraduates in their first, third, and final years, experiments and training sessions are held in the fields of workshop technology, production

engineering, production technology, and automobile technology. In addition to these, the workshops also create the hardware required for student projects.

The other function entails the production of tools for research and teaching, upkeep of machinery, industrial training of undergraduates and NAITA (National Apprentice Industrial and Training Authority) trainees, industrial consultancy work (design, production of tools and mechanisms for industry), assessment of craftsmen and technical staff, motor vehicle repair and servicing (university fleet), and a variety of fabrication work for the university.

2.1.3 Types of Engineering apps

1. i Engineer - Puts all your engineering textbooks in the palm of your hand. I Engineer offers a database of screw and bolt information. It will help you understand if a bolt/screw can withstand a certain amount of force or what drill you should be using.
2. HVAC Professional - This app features 200 formulas of the HVAC Formulator, as well as the complete International Mechanical Code. You can search, mark formulas as 'favourites' and also access frequently used formulas.
3. i Circuit - An easy-to-use iPad and iPhone app for designing and experimenting with circuits. It has over 30 elements that you can use to build your circuits, and an advanced simulation engine that can handle both analog and digital circuits.
4. Lux Calc Fluid Prop - Mechanical engineers - use this app to accurately calculate the thermophysical properties (I'm not even going to pretend that I know what that means) of common fluids found in heat transfer, just with your fingertips!

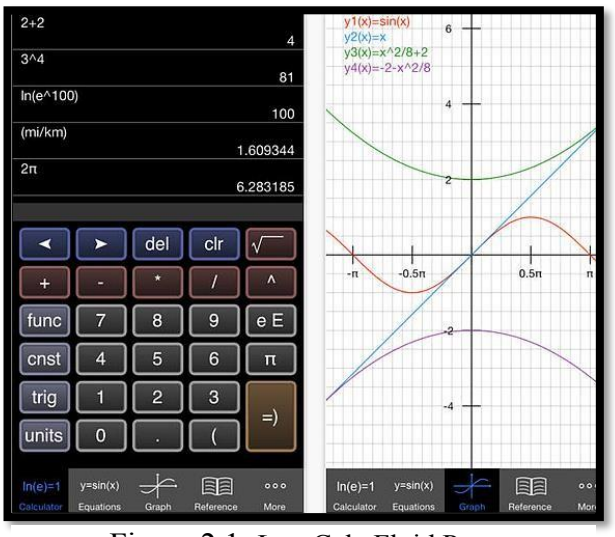


Figure 2.1: Lux Calc Fluid Prop

5. Graphing Calculator - This handy app turns your iPad into a multi-function tool with a high-res function plotter, unit converter and scientific calculator.

6. Mechanical engineer - Whether you tinker at home, you're studying engineering or you're a full-time mechanical engineer, this app features over 300 helpful mechanical engineering formulas and conversion formulas to help you get the job done.

7. Engineering Professional - You will look like the ultimate engineering professional thanks to this app. It covers formulas for chemical, civil, electrical, environmental, hydrology and mechanical engineering. Engineering students, this is a particularly good reference tool to use to impress your tutors.

8. Engineering Unit Conversion - Number crunch with ease. This comprehensive unit conversion tool makes conversion calculations easy-peasy, covering all the dimensions engineers need on a daily basis.

9. Finger CAD – Finger CAD is a computer aided design application for technical drawing. You can draw houses, bridges, mechanical components, geometrical figures - just about anything the same way you would on your desktop.

10. Turbo Viewer X - This app allows you to pan, zoom and 3D orbit around your CAD, DWG and DXF files, as well as mark-up changes and share files with contacts. Now you can play around with your drawings and documents as soon as inspiration strikes.

11. AutoCAD 360 - The official AutoCAD app, this app lets engineers view, edit and share DWG drawings. You can annotate and revise drawings while on location in the field, in meetings or out of the office, then share your genius ideas with others.

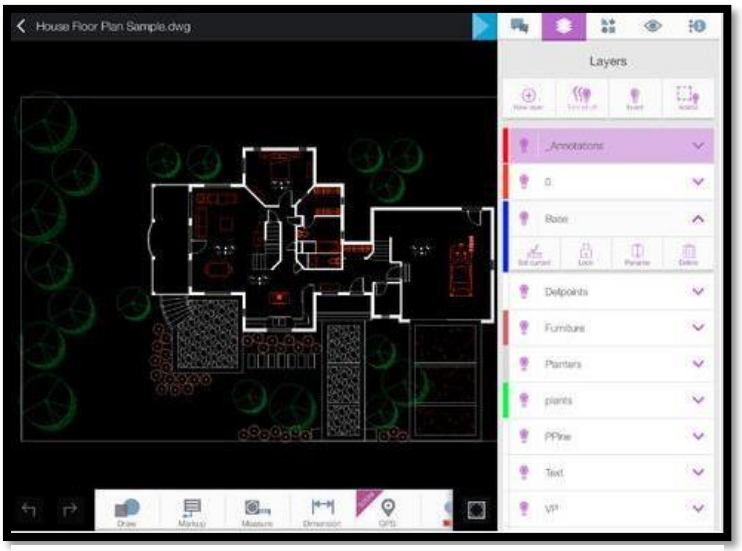


Figure 2.2: AutoCad 360

2.2 SPECIFIC LITERATURE REVIEW

2.2.1 Storyboard

When downloading we provide 2 ways to download it either download the apps inside the phone or open it by link that can be share and provided. After download the apps, it will straight go to the apps home page which contain the document and all the apps features. The home page will show some facts about tools with the figures of the tools.

In the middle of the features there is a document icon which inside there contain all the info about the safety precautions, tools, video demonstration, quiz and about developer. Clicking this button users will find lots of tools option that they want to learn about. If users click on either one of it, then it will display all the information about each tools and information about the tools. Users also provided with back button to go back to the tools selection option and choose other tools that they want to learn. Each tool provides precise information about the tools. Users also provided with another back button to go back to the menu. Other than that, inside the tools selection section there is a next button to show many more tool to be selected. Other than that, in the menu there is also a video demonstration upon the usage of the tools. Clicking this button users also will go to the tool selection section. This time, upon selecting the tools it will show the users video about how to use the tools. Users also provided with back button to go back to tools selection section and watch other video demonstration on different tools and a next button to show many more tool to be selected. If you users don't want to watch the tutorial they can press the back button on the tools selection section and went back to the menu to select other features.

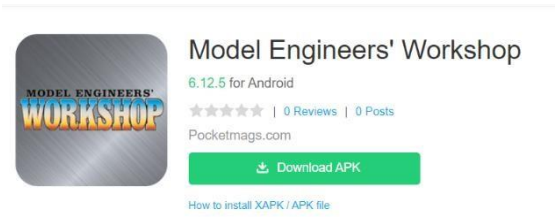
Next feature is the "safety precaution". Clicking this button, users will be shown about general safety precautions inside the workshop for their own safety. It also provided with back button to go back to the menu and select other features. Moreover, inside the apps also give a "quiz" feature. This feature can test about user's knowledge by giving set of quiz. Clicking this feature will show the tools selection again. Users can click any tools they want and it will go straight to the "word wall" app. Users also provided with back button to go back to tools selection section, menu ,quiz on different tools and a next button to show many more tool to be selected. If you users don't want to answer the quiz they can press the back button on the tools selection section and went back to the menu to select other features. Inside the quiz there are 3 question.

Pressing start it will start the timer and the time answering the question will be recorded. Each question has multichoice answer. If users answer the question correctly it will go to the next question. If users answer the question with wrong answer it will automatically show the correct answer for the question and proceed to ne next question.

After answering all the question users will be ranked in the leader board. In the leader board it will state the placement, name, score and time. Users can exit the "word wall" by pressing the home icon on the top right of the screen. There will be a notification asking if they want to exit the apps and have to choices which are yes or no. Pressing yes will lead the users back to the menu and pressing no will direct them back to the "word wall". Final feature is about the developer information. Clicking this button will show information about the developer information for users to read. It also provides with back button to go back to the menu if they finish reading about the developer's information.

2.3 REVIEW OF RECENT RESEARCH AND RELATED PRODUCT

2.3.1 Recent Market Products

No.	Marketed Product	Patent Summary
1.		Product name: Model Engineer's Workshop Published Date: 12/8/2015 Inventors: Pocketmags.com Description: This publication covers the tools, supplies, methods, and processes used in precision metalworking. It's free to download this software. Users of the app can buy both

		the most recent issue and older issues. Additionally, the application offers subscriptions. The most recent issue will be the first in a subscription.
2.		Product Name: Workshop Technology Published Date: 29/8/2018 Inventors: Brain Strom Description: Create a user-friendly website that gives a reputable client a global presence. The primary goal is to offer scalable, affordable services offshore.
3.		Product name: Basic Engineering Dictionary Published date: 8/2/2020 Inventors: Edutainment Ventures Description: This engineering app will definitely solidify your understanding of the fundamentals of engineering with its more than 11000

		engineering terms and abundance of engineering equations, formulas, and facts. This Basic Engineering Dictionary includes a Quick Guide of equations and formulas with illustrations for speedy learning. Numerous engineering quizzes can be found in the Basic Engineering App to challenge your learning and help brush up knowledge.
4.		Product name: Learn Mechanical Engineering Published Date: 18/5/2020 Inventors: Super Simple Video Description: Brings you a simple, crisp and to-the-point app for "Learn Mechanical Engineering".. This app provides a quick summary of essential concepts in Mechanical Engineering by following snack sized chapters: Mechanical Engineering and Mechanics, Engineering Materials, Mechanical Properties,

		Mechanical Measurements, Thermodynamics, Machine Tools I, Machine Tools II, Manufacturing Process, Measurement Tools, Fluid Mechanics, Combustion Engines, Steam Boilers.

2. 4: COMPARISON BETWEEN RECENT RESEARCH AND CURRENT PROJECT

2.4.1 : Product A vs Our Product

Product	Model Engineer's Workshop	i-TLA
Design		
Data usage	YES	NO
Purpose	Covers the tools, supplies, methods, and processes used in precision metal working.	Tells about basic knowledge about tooling to use in engineering workshop education
Features	Wording explanation	Video explanation
Target	Everyone	MRO students and instructor
Platform	Android	Android

Table 2.4.1: Product A vs Our Product

2.4.2 : Product B vs Our Product

Product	Workshop Technology	i-TLA
Design		
Data usage	YES	NO
Purpose	Android Application that contains MCQ Quiz for the subject of Workshop	Tells about basic knowledge about tooling to use in engineering workshop education

	Technology in Mechanical Engineering.	
Features	Subscription to access	Free software to make this app.
Target	Everyone	MRO students and instructor
Platform	Android	Android

Table 2.4.2: Product B vs Our Product

2.4.3 : Product C vs Our Product

Product	Basic Engineering Dictionary	i-TLA
Design		
Data usage	YES	NO
Purpose	solidify your understanding of the fundamentals of engineering	Tells about basic knowledge about tooling to use in engineering workshop education
Features	Explain details on fundamentals of engineering	Simple explanation
Target	Engineering Students	MRO students and instructor
	Android and Ios	Android

Table 2.4.3: Product C vs Our Product

2.4.4 : Product D vs Our Product

Product	Learn Mechanical Engineering	i-TLA
Design		
Data usage	YES	NO
Purpose	a quick summary of essential concepts in Mechanical Engineering by following snack sized chapters	Tells about basic knowledge about tooling to use in engineering workshop education.
Features	Quizzes to test knowledge	Simple and easy quizzes for assessment
Target	Mechanical Students	MRO students and instructor
	Android and Ios	Android

Table 2.4.4: Product D vs Our Product

CHAPTER 3

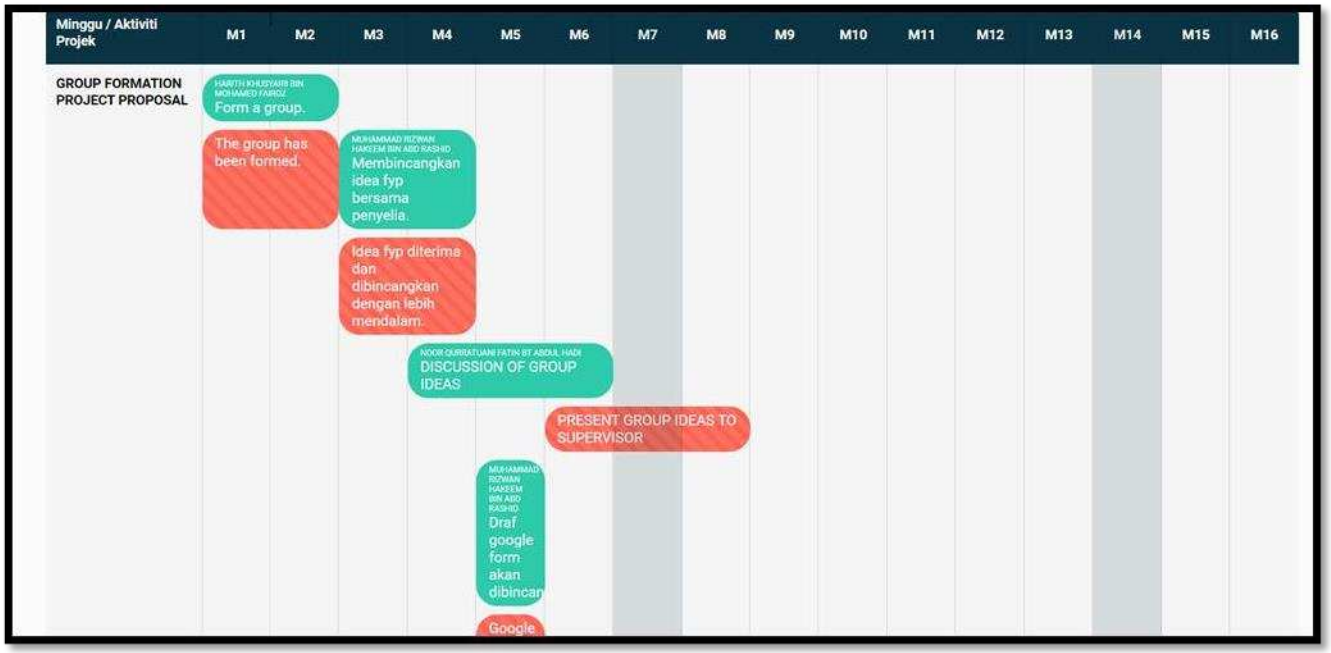
RESEARCH METHODOLOGY

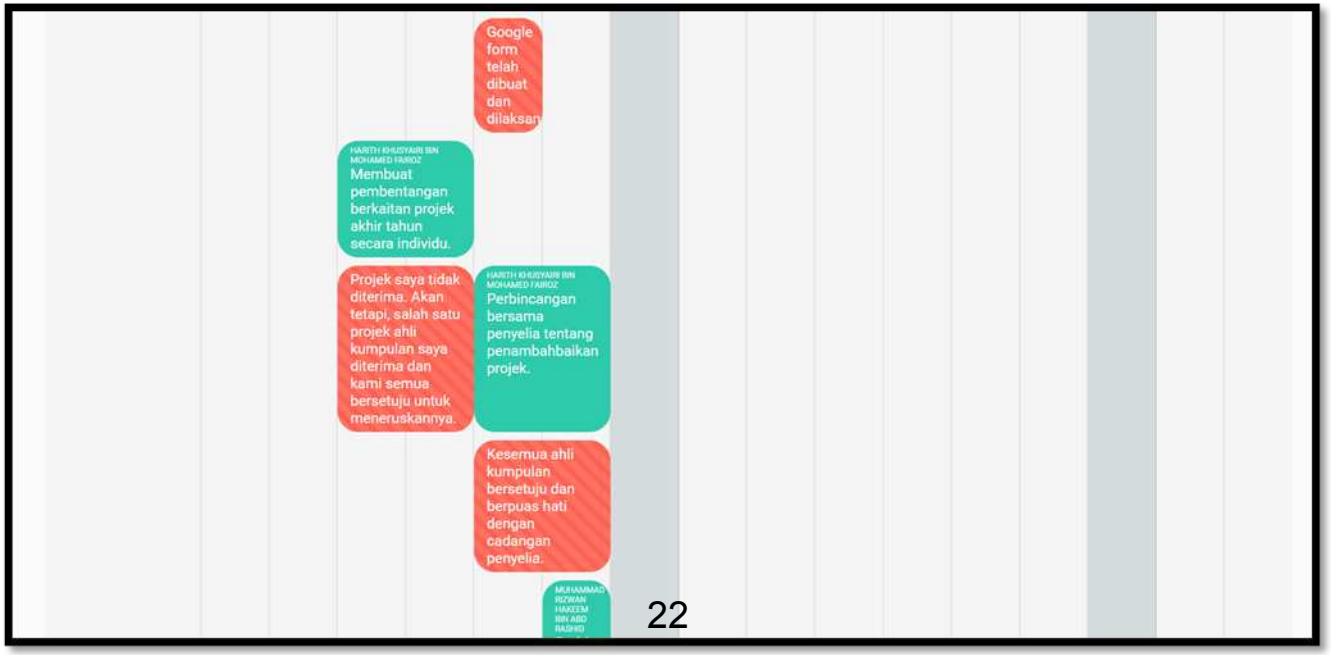
3.1 PROJECT BRIEFING & RISK ASSESSMENT

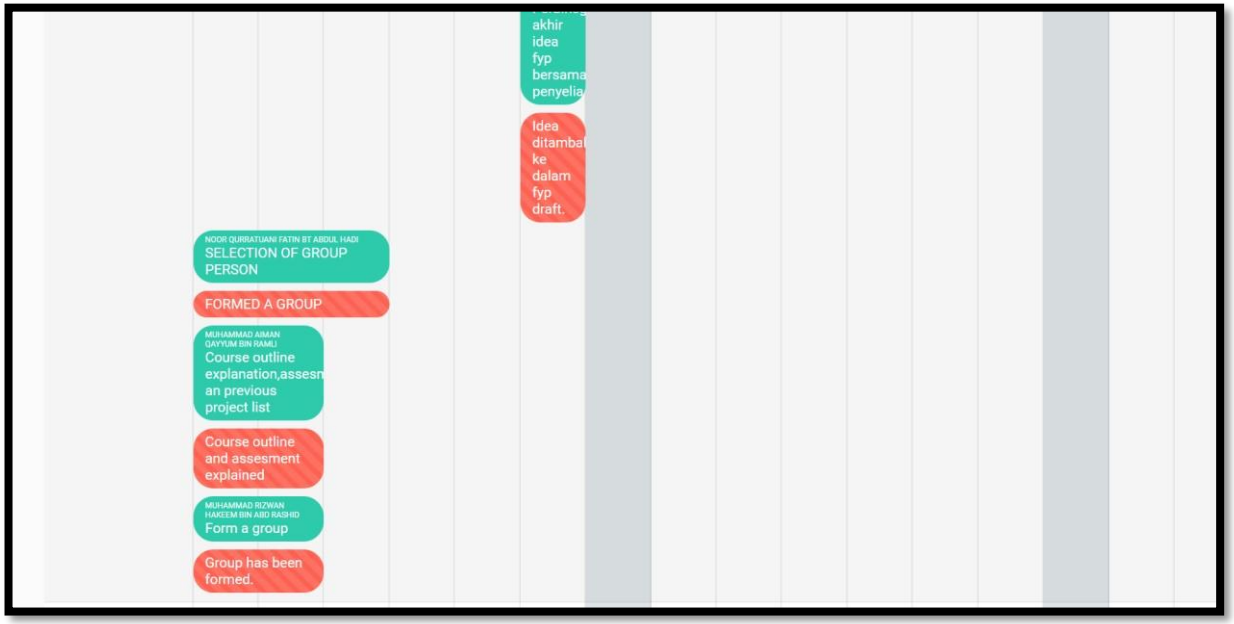
In this chapter, we will be briefing about our product and various of step to make it successfully work and can be use for everyone in order to achieve our objective and our goals. During this course, a lot of stage involved in our the production of our app such as designing, editing, developing and testing our product. Even our product is software, serious safety precaution was taken by all our team members to avoid any unnecessary event happened.

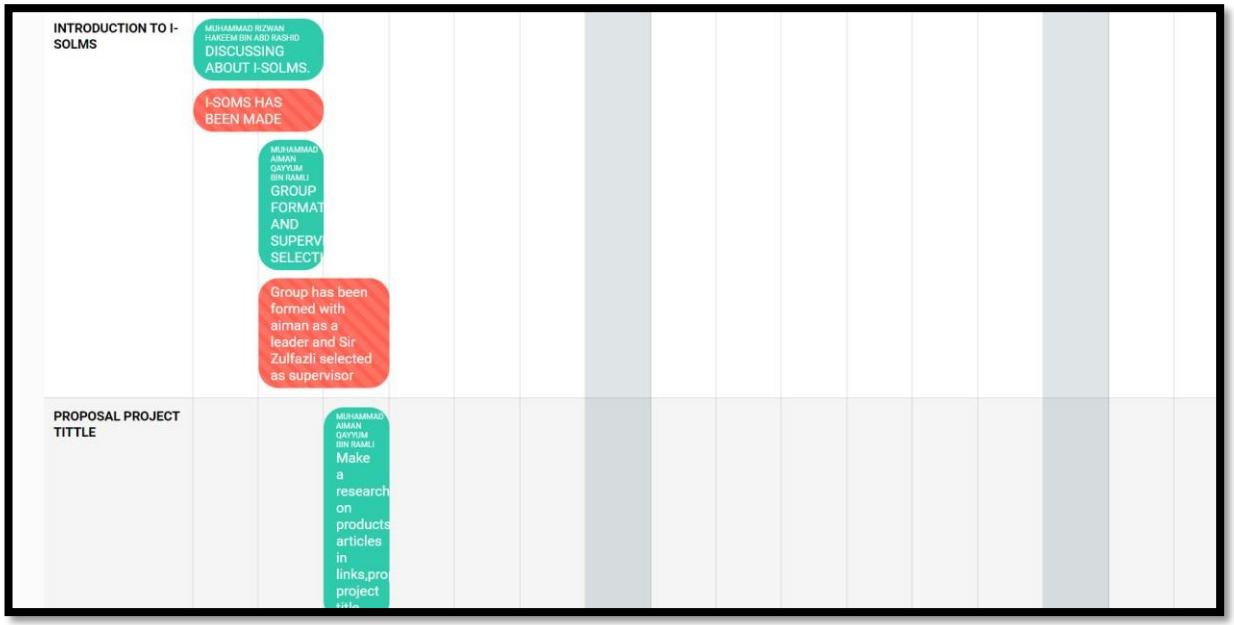
3.2 OVERALL PROJECT GANTT CHART

3.2.1: Gantt Chart for AEM


Minggu / Aktiviti Projek
M1
M2
M3
M4
M5
M6
M7
M8
M9
M10
M11
M12
M13
M14
M15
M16
GROUP FORMATION PROJECT PROPOSAL
HARITH KHUSYAIRI BIN MOHAMED FAIROZ
Form a group.
The group has been formed.
MUHAMMAD RIZWAN HAKEEM BIN ABD RASHID
Membincangkan idea fyp bersama penyelia.
Idea fyp diterima dan dibincangkan dengan lebih mendalam.
NOOR QURRATUANI FATIN BT ABDUL HADI
DISCUSSION OF GROUP IDEAS
PRESENT GROUP IDEAS TO SUPERVISOR
MUHAMMAD RIZWAN HAKEEM BIN ABD RASHID
Draf google form akan dibincan
Google


Google form telah dibuat dan dilaksan
HARITH KHUSYAIRI BIN MOHAMED FAIROZ
Membuat pembentangan berkaitan projek akhir tahun secara individu.
Projek saya tidak diterima. Akan tetapi, salah satu projek ahli kumpulan saya diterima dan kami semua bersetuju untuk meneruskannya.
HARITH KHUSYAIRI BIN MOHAMED FAIROZ
Perbincangan bersama penyelia tentang penambahbaikan projek.
Kesemua ahli kumpulan bersetuju dan berpuas hati dengan cadangan penyelia.
MUHAMMAD RIZWAN HAKEEM BIN ABD RASHID


akhir
idea
fyp
bersama
penyelia
Idea
ditambat
ke
dalam
fyp
draft.
NOOR QURRATUANI FATIN BT ABDUL HADI
SELECTION OF GROUP PERSON
FORMED A GROUP
MUHAMMAD AIMAN QAYYUM BIN RAMLI
Course outline explanation,assesm an previous project list
Course outline and assesment explained
MUHAMMAD RIZWAN HAKEEM BIN ABD RASHID
Form a group
Group has been formed.


INTRODUCTION TO I-SOLMS
MUHAMMAD RIZWAN HAKEEM BIN ABD RASHID
DISCUSSING ABOUT I-SOLMS.
I-SOMS HAS BEEN MADE
MUHAMMAD AIMAN QAYYUM BIN RAMLI
GROUP FORMAT AND SUPERV SELECT
Group has been formed with aiman as a leader and Sir Zulfazli selected as supervisor
PROPOSAL PROJECT TITTLE
MUHAMMAD AIMAN QAYYUM BIN RAMLI
Make a research on products articles in links,pro project


Found research and and articles and try to analyse about products,projrct tittle proposed to supervisor
MUHAMMAD RIZWAN HAKEEM BIN ABD RASHID
INTRODU
PROJEC
TITLE.
PROJEC
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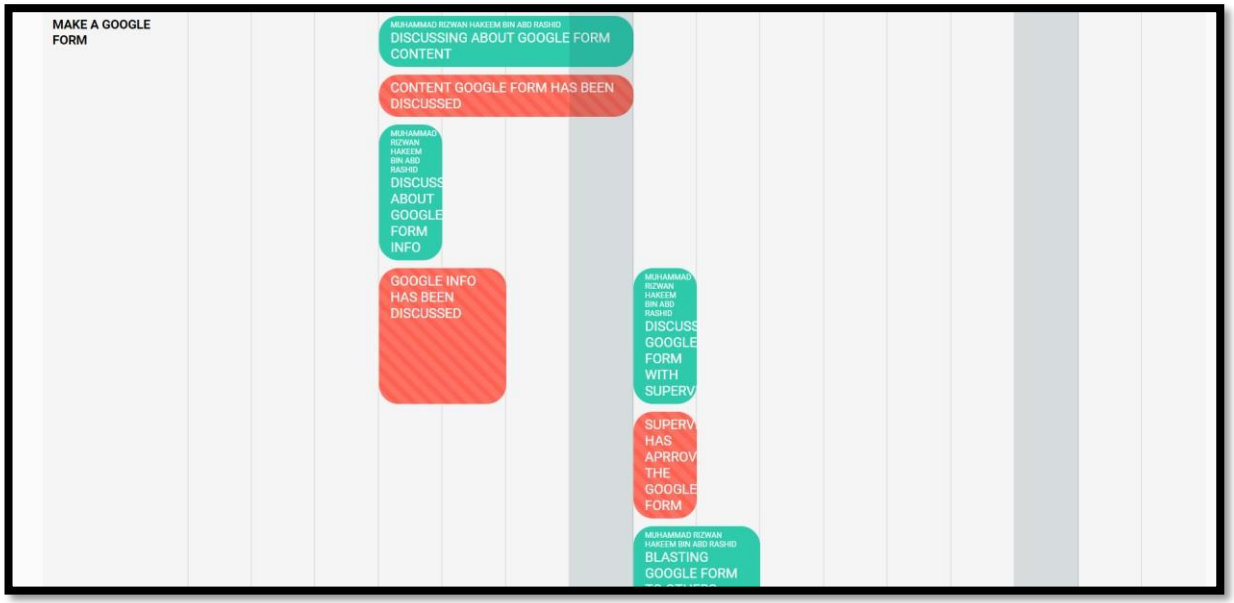
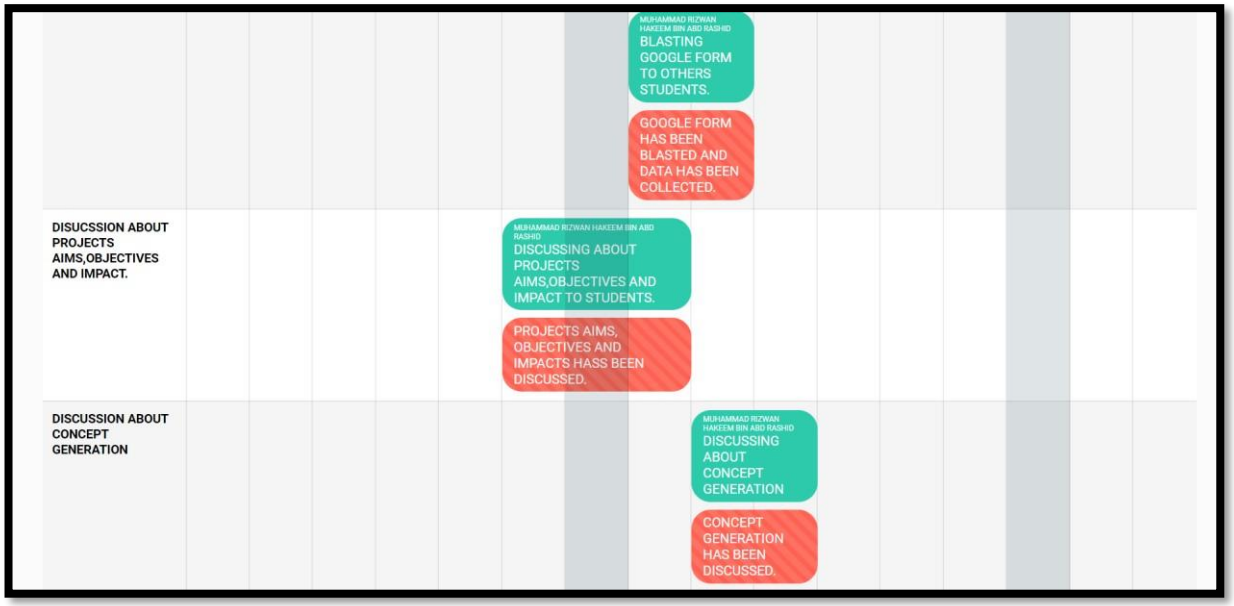
HAS
BEEN
INTROD
IDEA SELECTION
MUHAMMAD RIZWAN HAKEEM BIN ABD RASHID
DISCUSSING ABOUT IDEA SELECTION
IDEA HAS BEEN SELECTED AND APRROVED BY SUPERVISOR.
MAKE A GOOGLE FORM
MUHAMMAD RIZWAN HAKEEM BIN ABD RASHID
DISCUSSING ABOUT GOOGLE FORM CONTENT


MAKE A GOOGLE FORM
MUHAMMAD RIZWAN HAKEEM BIN ABD RASHID
DISCUSSING ABOUT GOOGLE FORM CONTENT
CONTENT GOOGLE FORM HAS BEEN DISCUSSED
MUHAMMAD RIZWAN HAKEEM BIN ABD RASHID
DISCUSS ABOUT GOOGLE FORM INFO
GOOGLE INFO HAS BEEN DISCUSSED
MUHAMMAD RIZWAN HAKEEM BIN ABD RASHID
DISCUSS GOOGLE FORM WITH SUPERV
SUPERV HAS APRROV THE GOOGLE FORM
MUHAMMAD RIZWAN HAKEEM BIN ABD RASHID
BLASTING GOOGLE FORM


MUHAMMAD RIZWAN HAKEEM BIN ABD RASHID
BLASTING GOOGLE FORM TO OTHERS STUDENTS.
GOOGLE FORM HAS BEEN BLASTED AND DATA HAS BEEN COLLECTED.
DISUCSSION ABOUT PROJECTS AIMS,OBJECTIVES AND IMPACT.
MUHAMMAD RIZWAN HAKEEM BIN ABD RASHID
DISCUSSING ABOUT PROJECTS AIMS,OBJECTIVES AND IMPACT TO STUDENTS.
PROJECTS AIMS, OBJECTIVES AND IMPACTS HASS BEEN DISCUSSED.
DISCUSSION ABOUT CONCEPT GENERATION
MUHAMMAD RIZWAN HAKEEM BIN ABD RASHID
DISCUSSING ABOUT CONCEPT GENERATION
CONCEPT GENERATION HAS BEEN DISCUSSED.


GENERATE FEATURES,CHARACTERISTICS AND CONCEPT DESIGN
MUHAMMAD RIZWAN HAKEEM BIN ABD RASHID DISCUSS ABOUT APP'S FEATUR
APP'S FEATUR HAS BEEN DISCUSS
MUHAMMAD RIZWAN HAKEEM BIN ABD RASHID DISCUSS ABOUT CHARAC OF APP
CHARAC OF APP HAS BEEN DISCUSS
MUHAMMAD RIZWAN HAKEEM BIN ABD RASHID DISCUSS ABOUT CONCEP DESIGN
CONCEP DESIGN HAS BEEN DISCUSS
PUGH MATRIX
MUHAMMAD RIZWAN HAKEEM BIN ABD RASHID

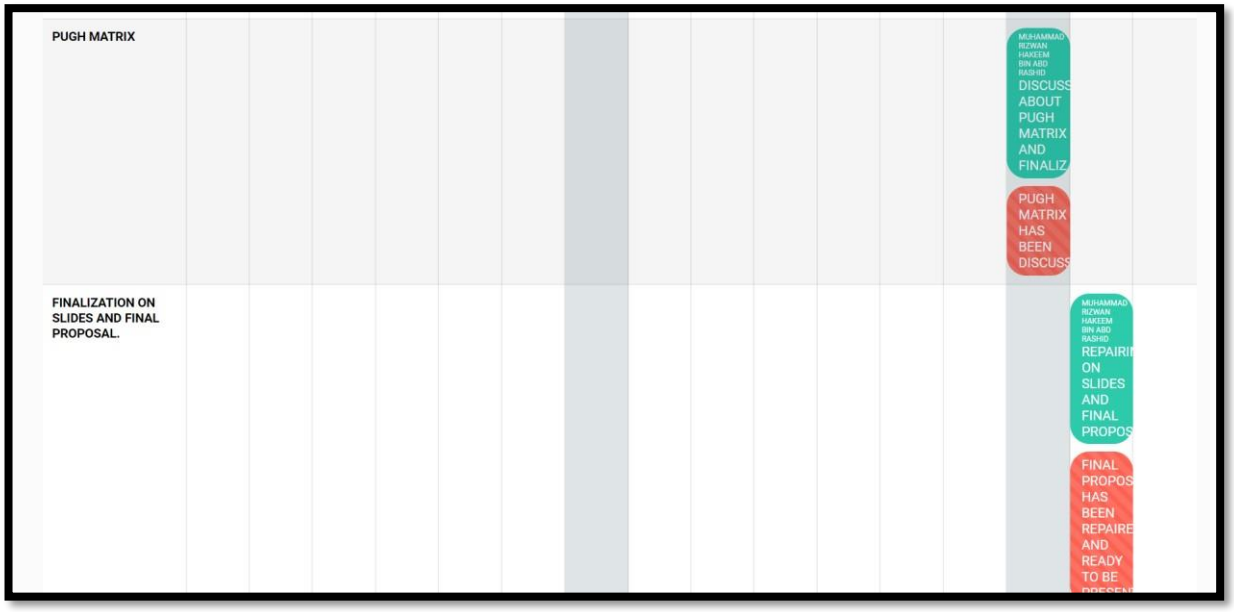
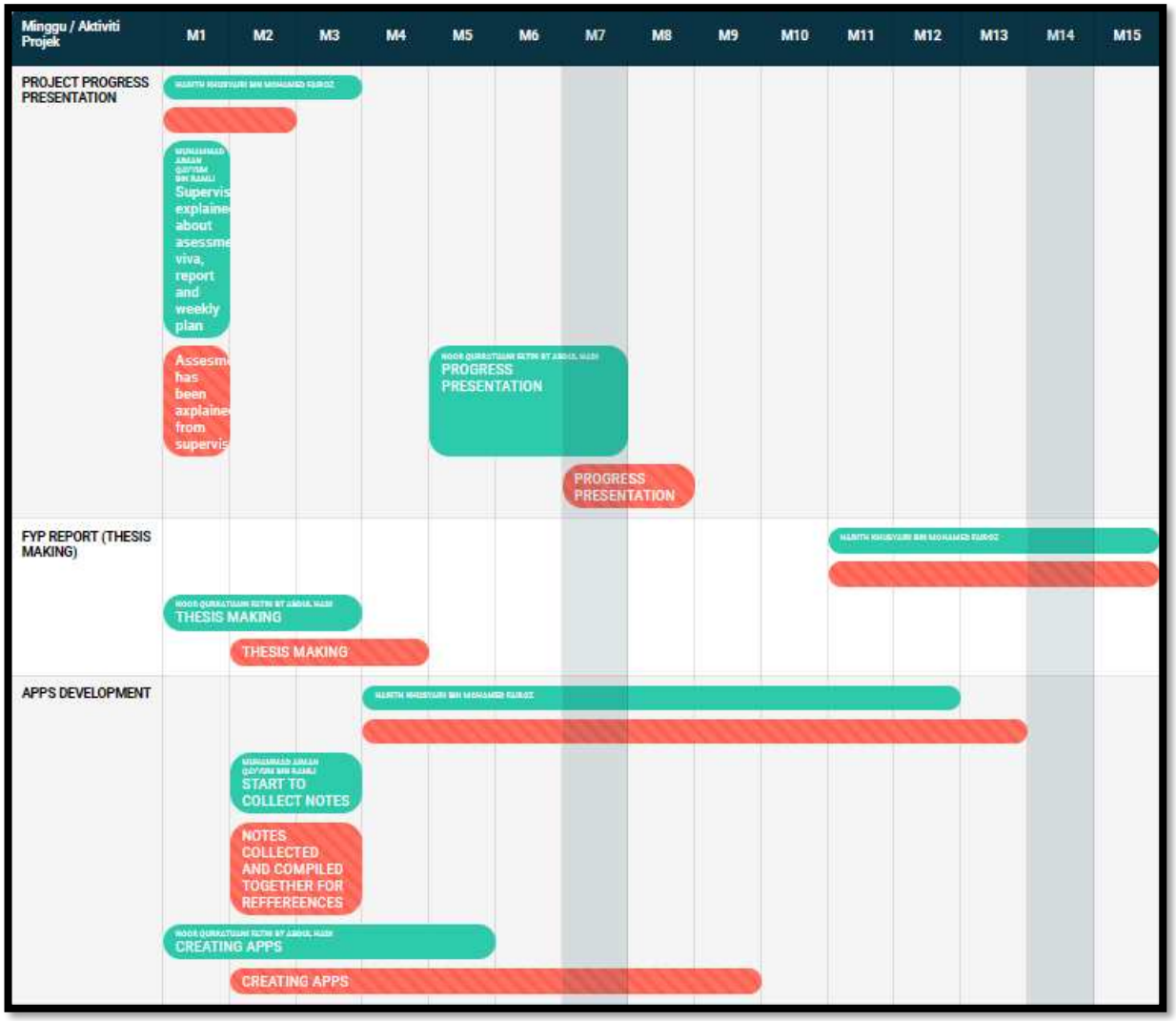
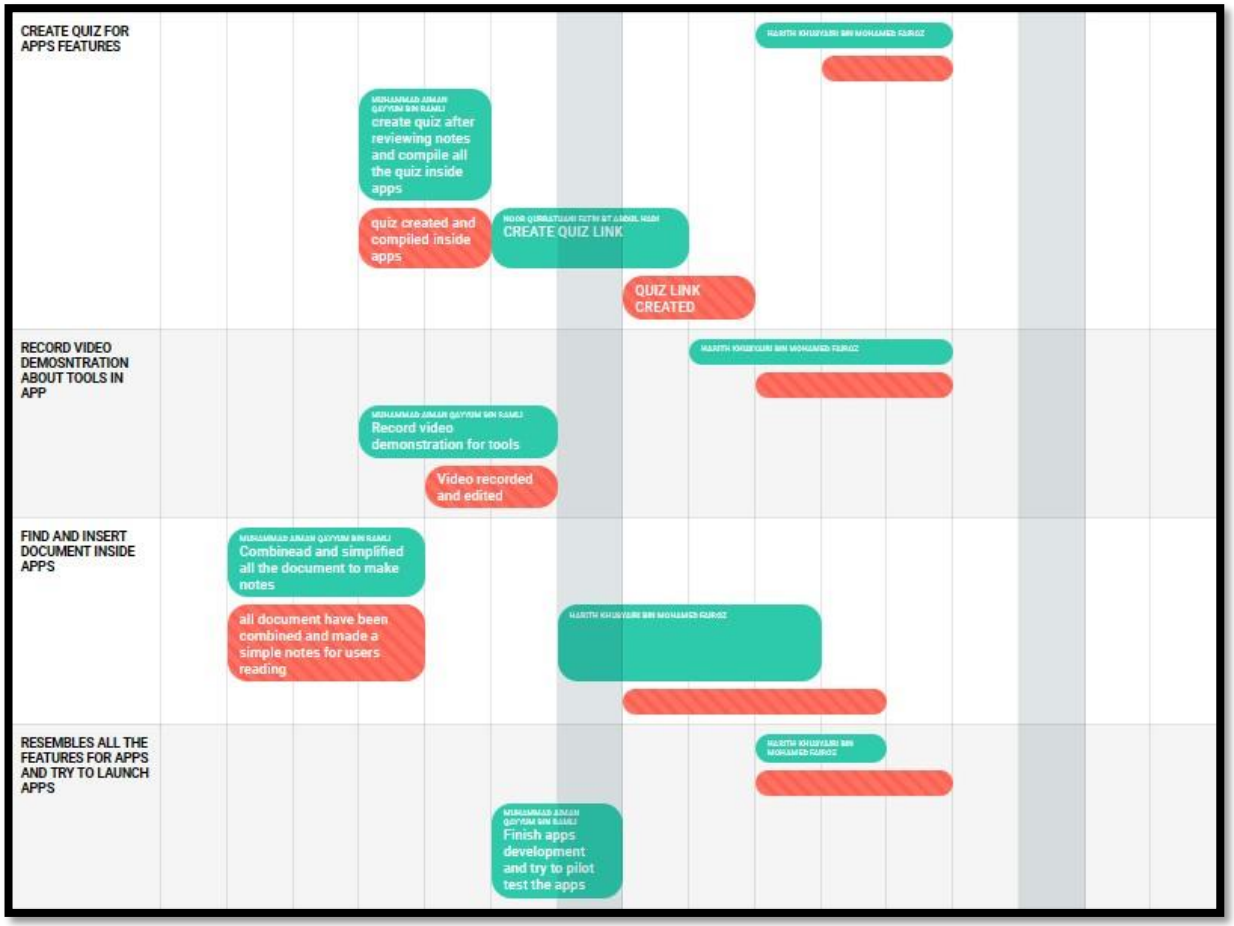

PUGH MATRIX
MUHAMMAD RIZWAN HAKEEM BIN ABD RASHID
DISCUSS ABOUT PUGH MATRIX AND FINALIZ
PUGH MATRIX HAS BEEN DISCUSS
FINALIZATION ON SLIDES AND FINAL PROPOSAL.
MUHAMMAD RIZWAN HAKEEM BIN ABD RASHID
REPAIRI ON SLIDES AND FINAL PROPOS
FINAL PROPOS HAS BEEN REPAIRE AND READY TO BE

Table 3.2.1: Gantt Chart for AEM

3.2.2: Gantt Chart for AEP


Minggu / Aktiviti Projek
M1
M2
M3
M4
M5
M6
M7
M8
M9
M10
M11
M12
M13
M14
M15
PROJECT PROGRESS PRESENTATION
Supervis explaine about asessme viva, report and weekly plan
Assesm has been axplaine from supervis
PROGRESS PRESENTATION
PROGRESS PRESENTATION
FYP REPORT (THESIS MAKING)
THESIS MAKING
THESIS MAKING
APPS DEVELOPMENT
START TO COLLECT NOTES
NOTES COLLECTED AND COMPILED TOGETHER FOR REFFEREENCES
CREATING APPS
CREATING APPS


CREATE QUIZ FOR APPS FEATURES
create quiz after reviewing notes and compile all the quiz inside apps
quiz created and compiled inside apps
CREATE QUIZ LINK
QUIZ LINK CREATED
RECORD VIDEO DEMOSNTRATION ABOUT TOOLS IN APP
Record video demonstration for tools
Video recorded and edited
FIND AND INSERT DOCUMENT INSIDE APPS
Combinead and simplified all the document to make notes
all document have been combined and made a simple notes for users reading
RESEMBLES ALL THE FEATURES FOR APPS AND TRY TO LAUNCH APPS
Finish apps development and try to pilot test the apps

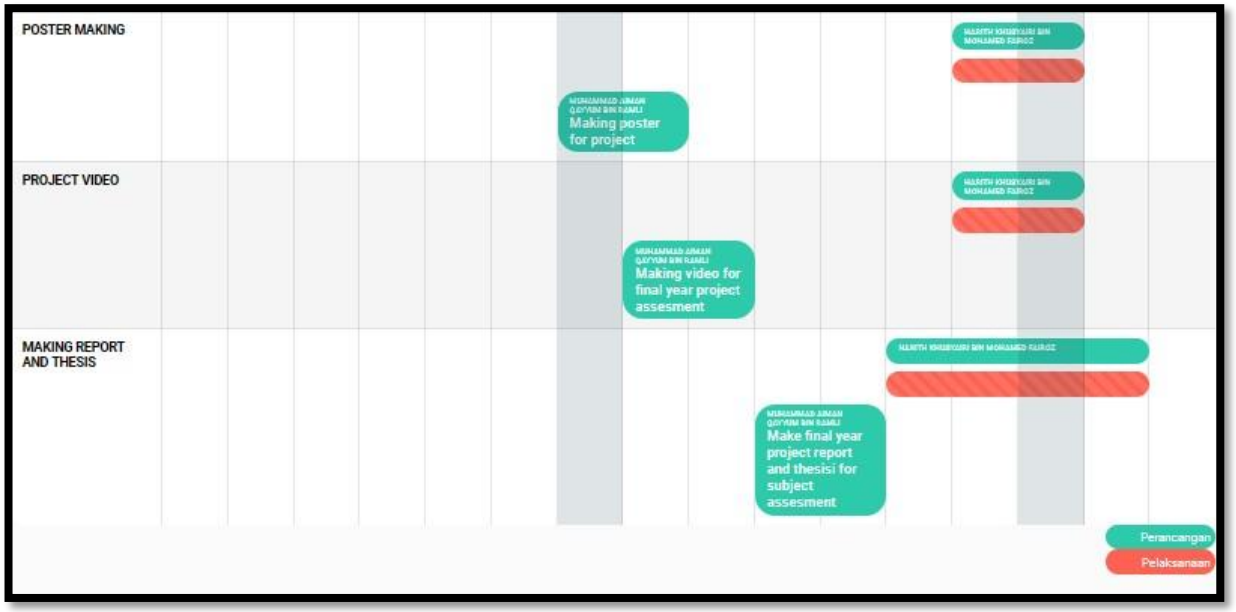


Table 3.2.2: Gantt Chart for AEP

3.3 PROJECT FLOW CHART

3.3.1 Overall AEM Project Flow Chart

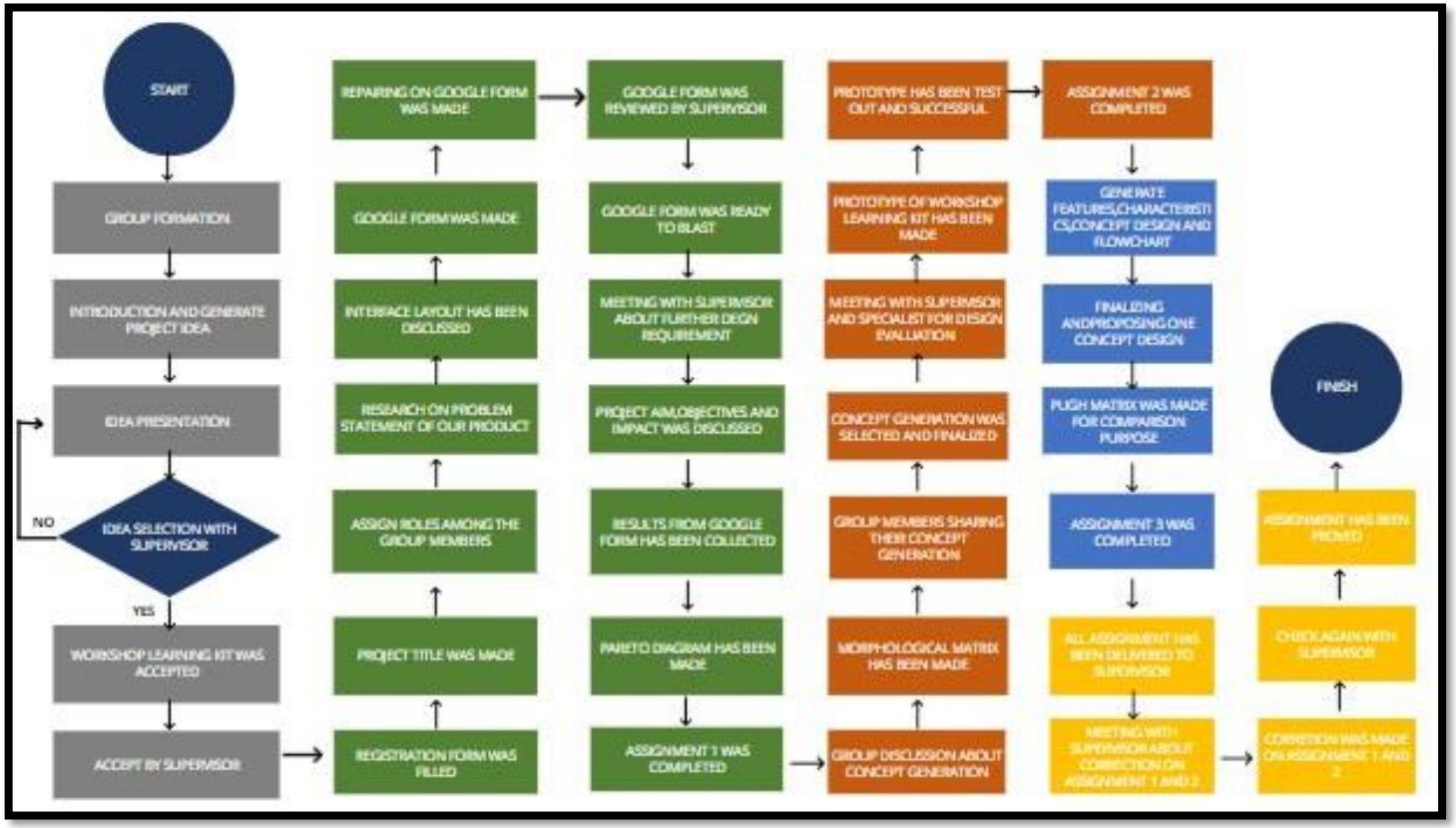


Figure 3.1: AEM Project Flow Chart

3.3.2 Overall AEP Project Flow Chart

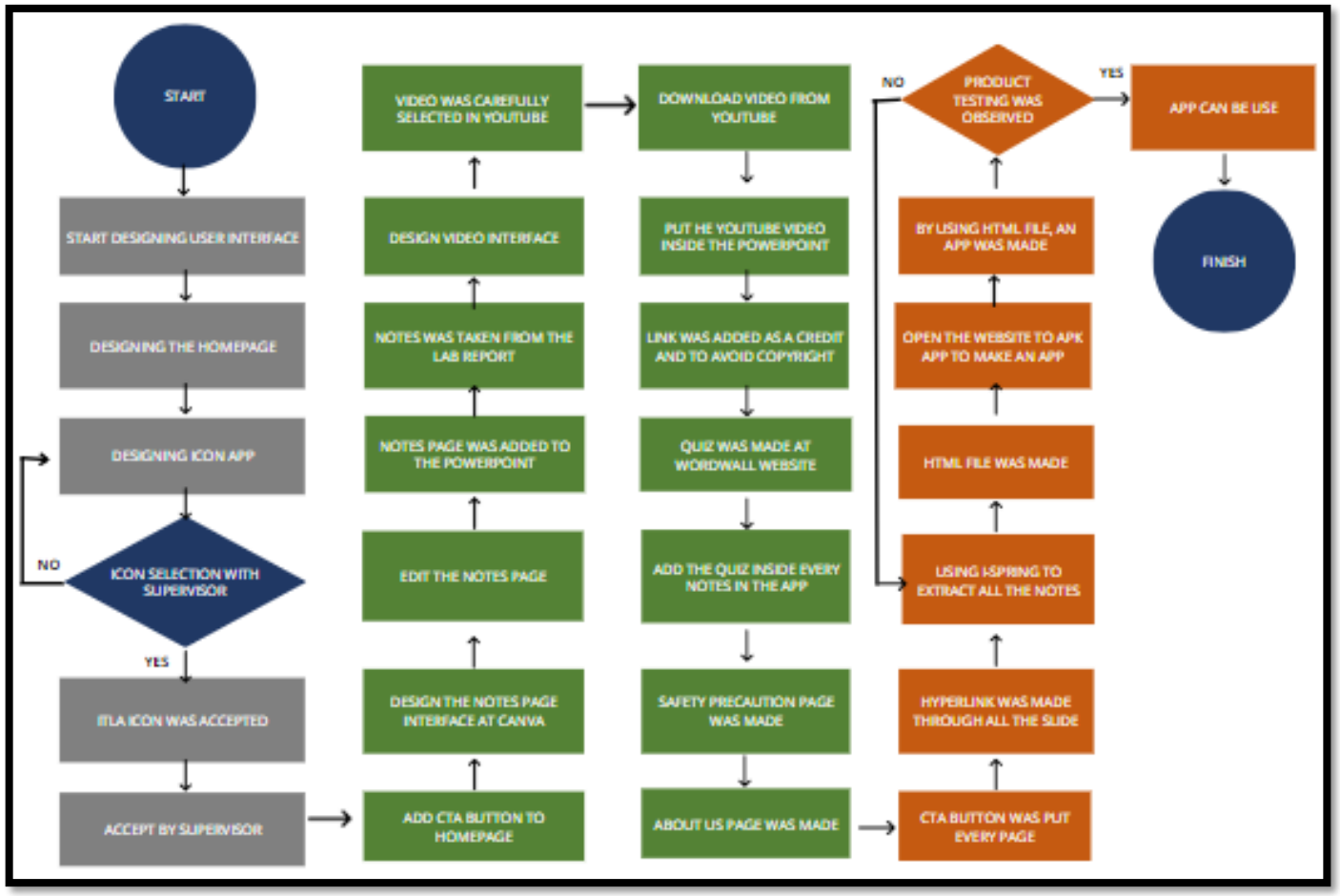


Figure 3.2: AEP Project Flow Chart

3.4 LIST OF MATERIALS & EXPENDITURES

No	Items	Unit	Price/Unit	Total (RM)
1	**PowerPoint**	**1**	**RM0.00**	**RM0.00**
2	**Canva**	**1**	**RM0.00**	**RM0.00**
3	**Website To Apk Software**	**1**	**RM0.00**	**RM0.00**
4	**Subscribe WordWall**	**1**	**RM10.00**	**RM10.00**
5	**I-Spring Suite**	**1**	**RM6.99**	**RM6.99**
	GRAND TOTAL			**Rm16.99**

Table 3.1: List of Materials & Expenditures

3.5 INTERFACE LAYOUT

3.5.1: General Product Interface Layout

Figure 3.3: General Product Interface Layout

When login into our app, this interface will show and you can choose the option as where you want to go. There is tool detail, video demonstration about the tool, general safety precaution, quiz for students to challenge their knowledge and lastly about us.

Figure 3.4: Tool Details

After you pressed tool detail, there is so many option you can choose about the tools you want to learn or know about.

Figure 3.5: Specific Tool

Then, this interface will pop out if you tap the tools you want to know about.

Figure 3.6: Video Demonstration

For the video demonstration part, you also can choose many options for the tools you want to learn about and the video will autoplay and there link below the video as a credit to the youtuber.

Figure 3.7: Safety Precaution

About safety precautions, the interface will show you general safety precautions when you want to use tools for your safety. This guideline will helps you in the future.

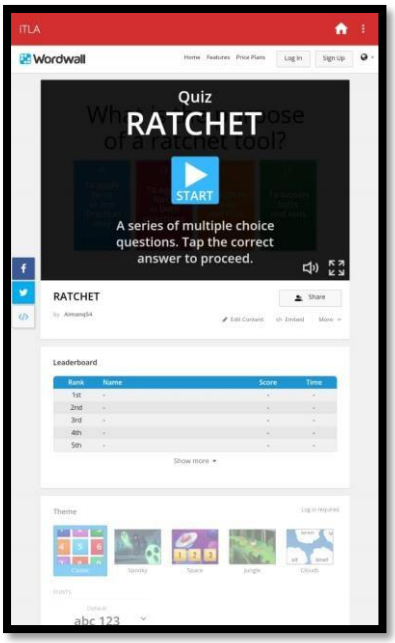


Figure 3.8: Quiz

After that, the quiz section also includes all the tools we provided as a quiz to make sure the students really understand about the tools. This can help their knowledge.

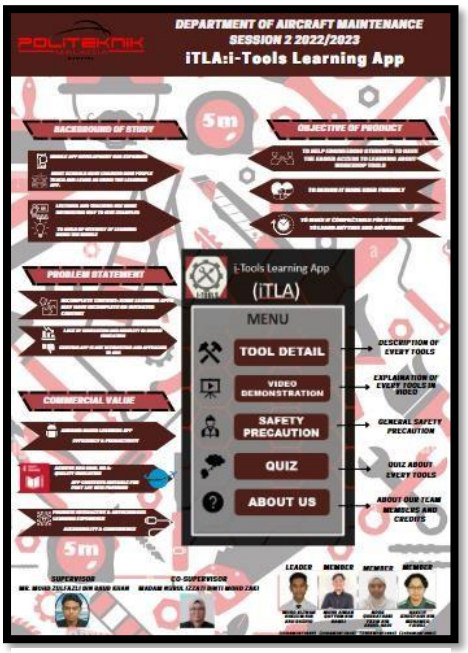


Figure 3.9: About Us

Finally, About Us section, we put our poster for people know about the all the objectives and our goals for their understanding why we make this app. Also, we want to attach our credit so people cannot steal our product.

3.6: DEVELOPMENT OF PRODUCT

3.6.1: Material Acquisition

Description	Material
As a platform to edit and design an app.	
As a platform to design our user interface in the beginning.	
The software that helps convert the slides from PowerPoint to HTML.	

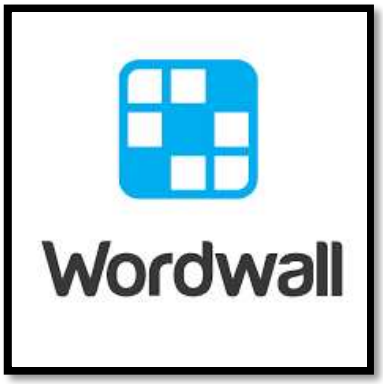
This software helps convert from HTML from i-spring to apk that can be download.	
As a website for students that can access to answer our quiz.	

Table 3.6.1: Material Acquisition

3.6.2 DEVICES

3.6.2.1 Personal Computer / Laptop

Figure 3.8

To do this i-Tools Learning App, there are two major part that need to be done which are designing and developing. For the designing part, there are some specs for the pc to have. It is because the pc or that have been used is a hardware platform for the PowerPoint and Canva, when the hardware platform does not support the version, it will affect the hardware or the software itself. There are some effects because of the not follow the specs which are the software randomly crashes while doing the work, unable to run Application Manager, product crash when communicating with licensing server, corrupt files, fatal error while opening the software and images in a drawing can crash. To avoid all of these, there are some specs of pc or laptops that need to be followed which are the operating system need to be in Microsoft Windows 10(64-bit only), Windows 8.1(64-bit only) and 7 SP1(64-bit only). Not also that, the 72 processor and memory of the hardware are also important. Basically, the default processor and memory of pc are 2.5 GHz and 8GB memory. While using the default, there are some issues that will be face which are lagging and slow refresh. To avoid it, the processor needs to upgrade 3 GHz and the memory need to add 16GB. The disk space of the hardware is enough for use the default (6.0 GB). The resolution of the screen also important to create the amazing graphics. So, the specs that need to have is 1920 x 1080p with true color.

3.6.2.2 Smartphone / Tablet

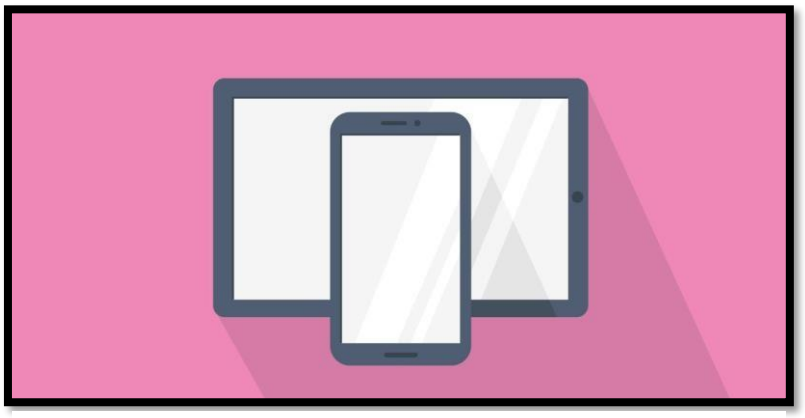


Figure 3.10: Smartphone & Tablet

We do the testing of the i-Tools Learning App by android devices, iOS devices and also laptop devices. The testing can be done at iOS system through only by using link from the app to open through the website. Low specs of phone also can use this application . There are some specs of the suitable smartphone. The phone that need to used must not be older 3-4 years from the current year. It is because there are some hardware issues that cannot be resolved by software solutions. When the phones are not too older, the default version from the phone is enough to access the game. 4GB of RAM is plenty for a phone to run smoothly. Display of the phone also important, there are some types of phone displays which are AMOLED, Super AMOLED, IPS, LCD, OLED, Retina, LED and TFT.

3.6.2.3 Overall Learning App Flow

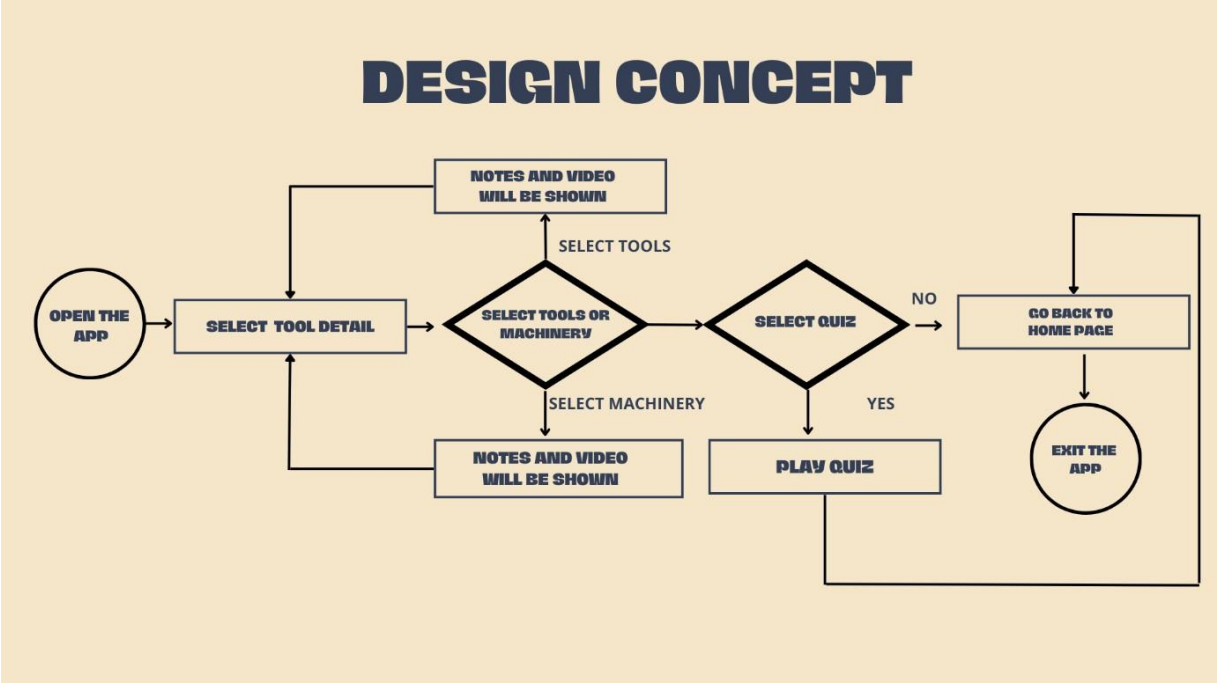


Figure 3.11: Overall Learning App Flow

3.6.3.1 App Design

3.6.3.1.1 CANVA

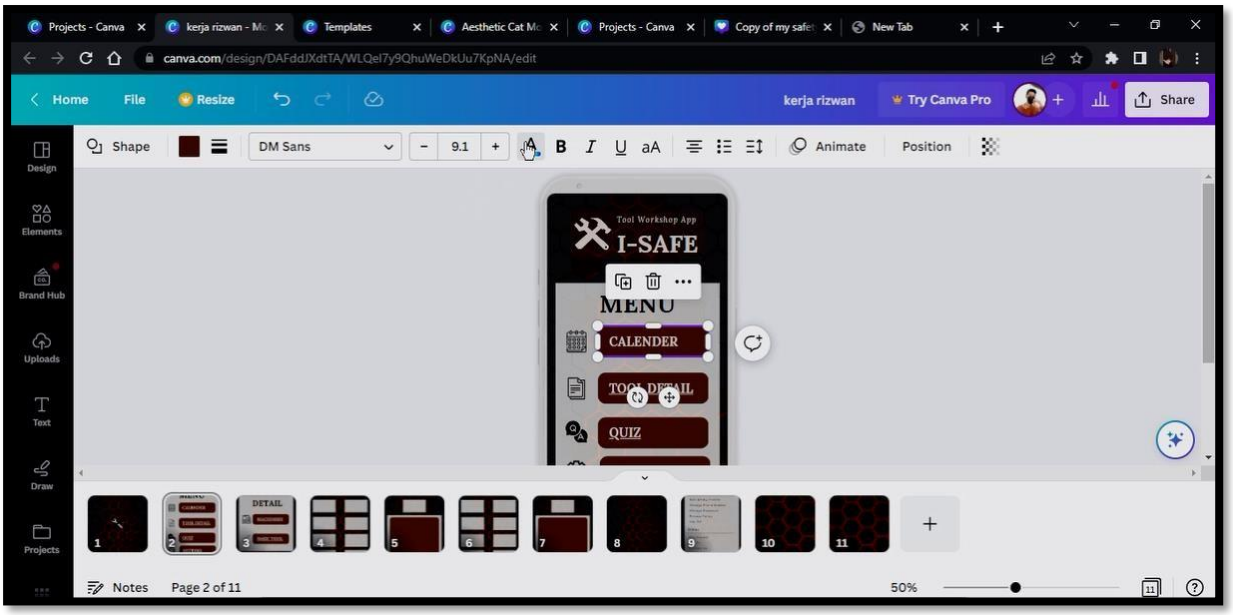


Figure 3.12: i-TLA Design from Canva

The application interface has been designed from the Canva website and transfer the design to the PowerPoint as our main current platform to develop the application. All the design was has been sketch first at Canva as our platform to generate idea. The reason we are using Canva as a platform for designing is because it has a lot type of design and template to rely on.

3.6.3.1.2 PowerPoint

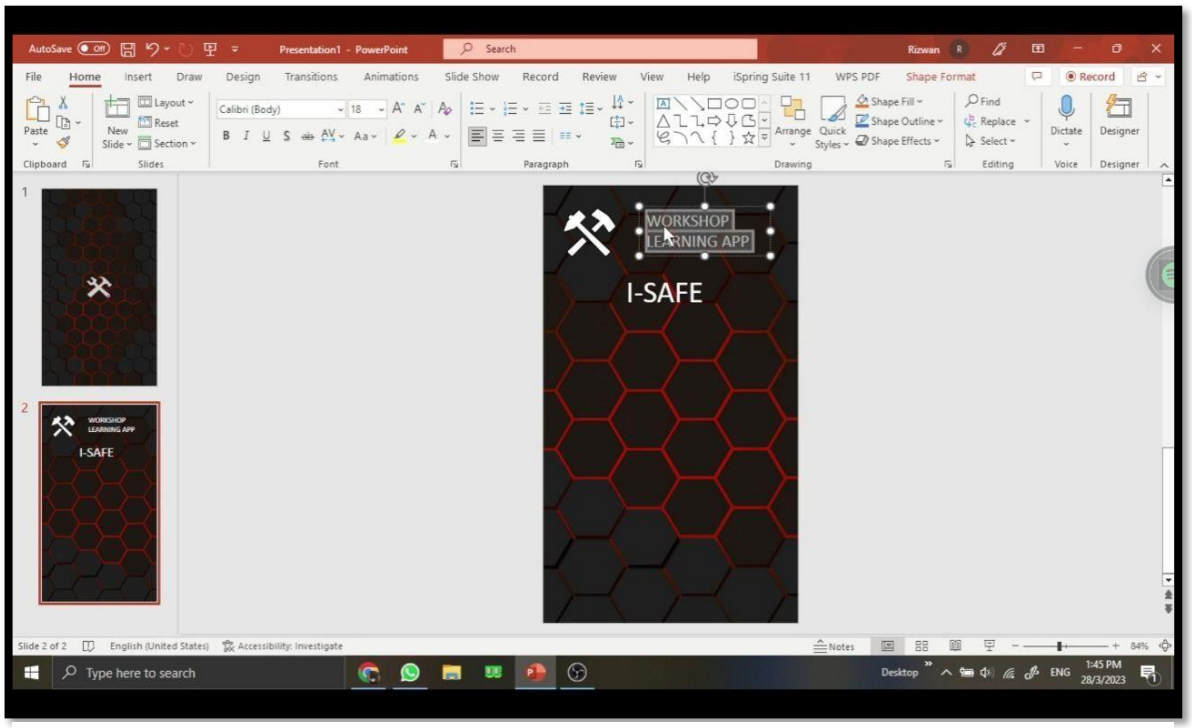


Figure 3.13: i-TLA Design from PowerPoint

The design earlier from Canva was transferred by just copy the exact design but just doing it in PowerPoint. The reason we transferred the design from Canva to PowerPoint was because PowerPoint is the platform that we want to extract to become the app not the Canva.

3.6.4 Product Development Software

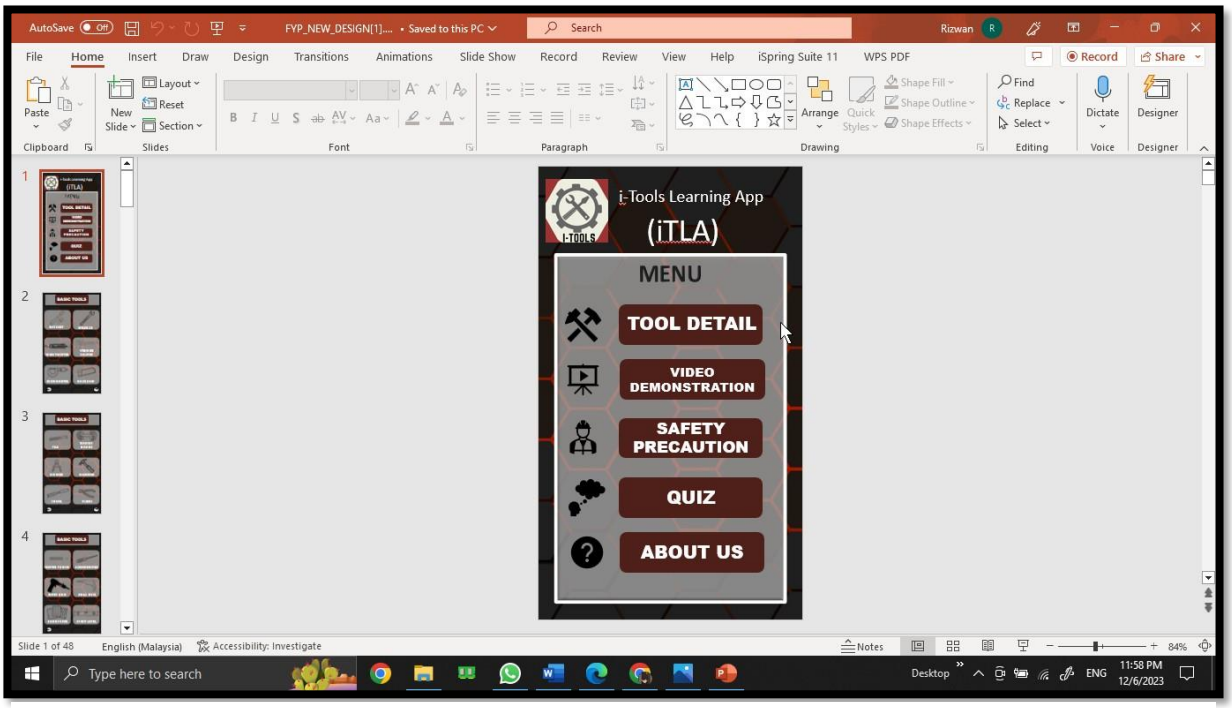


Figure 3.14: Product Development Software

This is what the front page looks like after the selection icon and font has been made. The icon was downloaded from the PowerPoint itself at the insert part of PowerPoint.

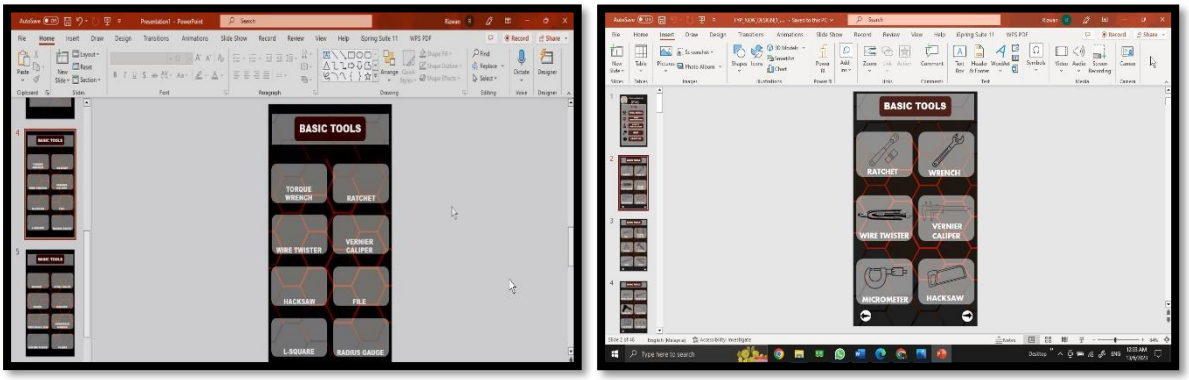


Figure 3.15: i-TLA Design Before & After

For the second page, we classified certain tools as our tools to put inside the application. As for the image of the tools, we just googled it and downloaded it from the google image.

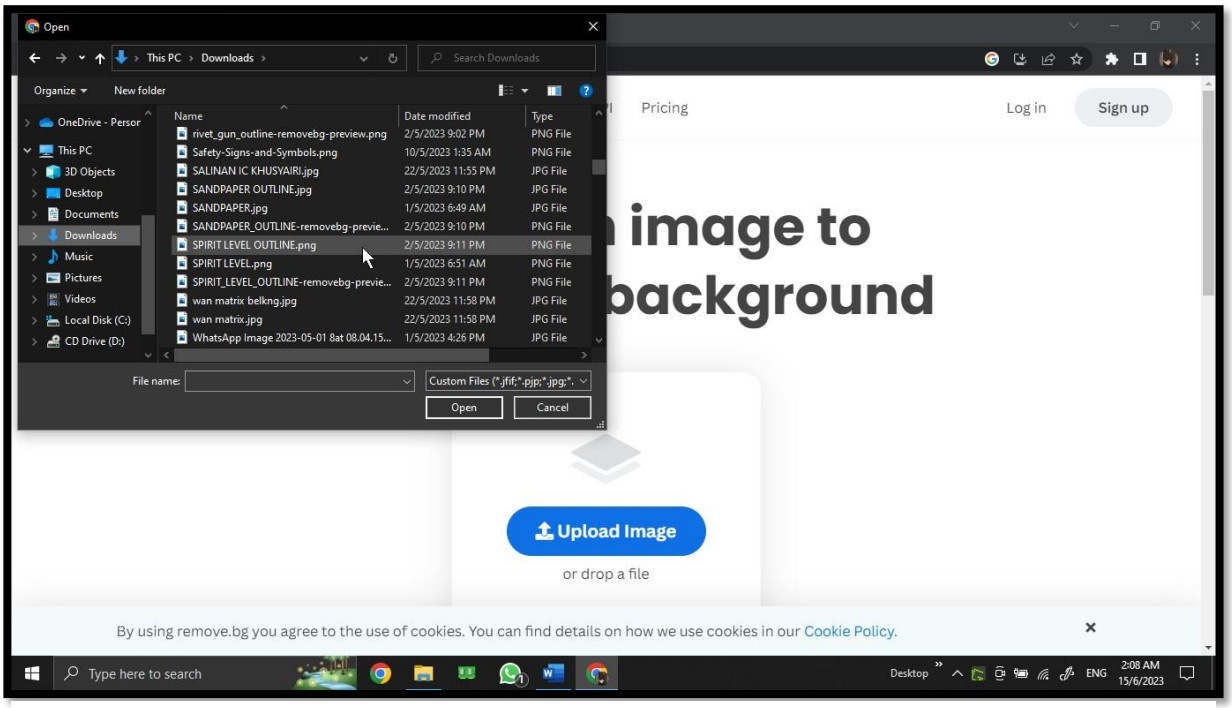


Figure 3.16: Process Remove Background

After that, the image will be filtered out by remove the background to get the outline of the tools as an icon.

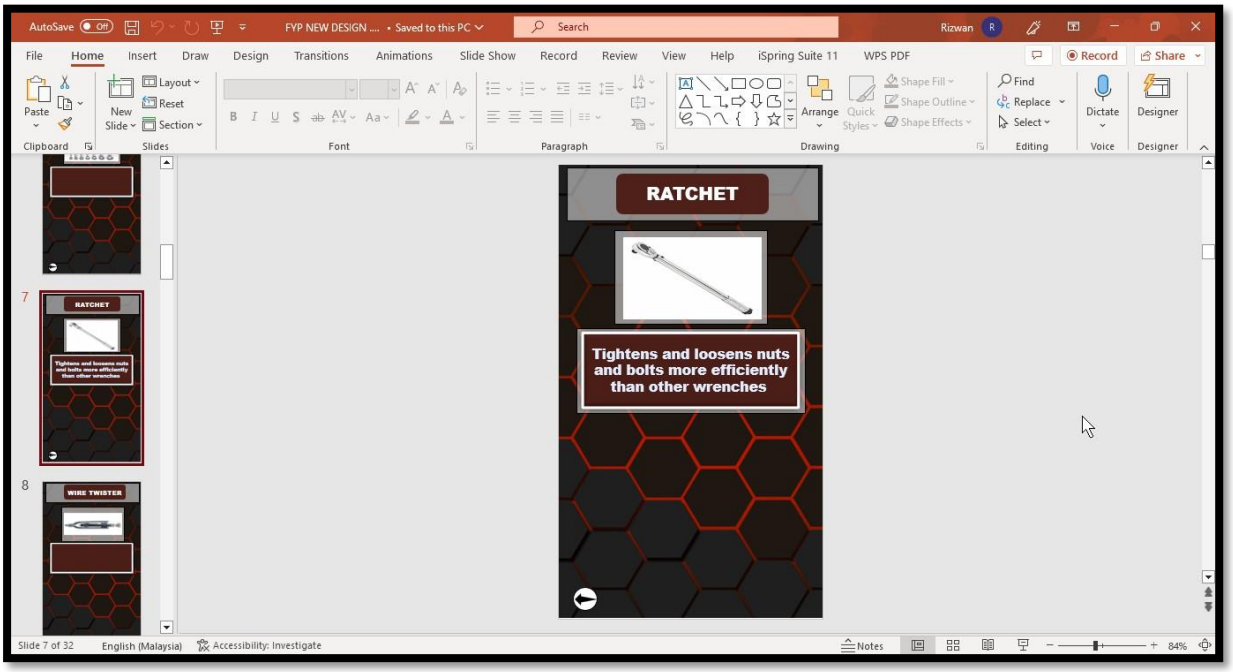


Figure 3.17: Page of Tools Info

For the page of the info of tools, the image was downloaded from google image and the notes was taken from the notes of Engineering Workshop subject.

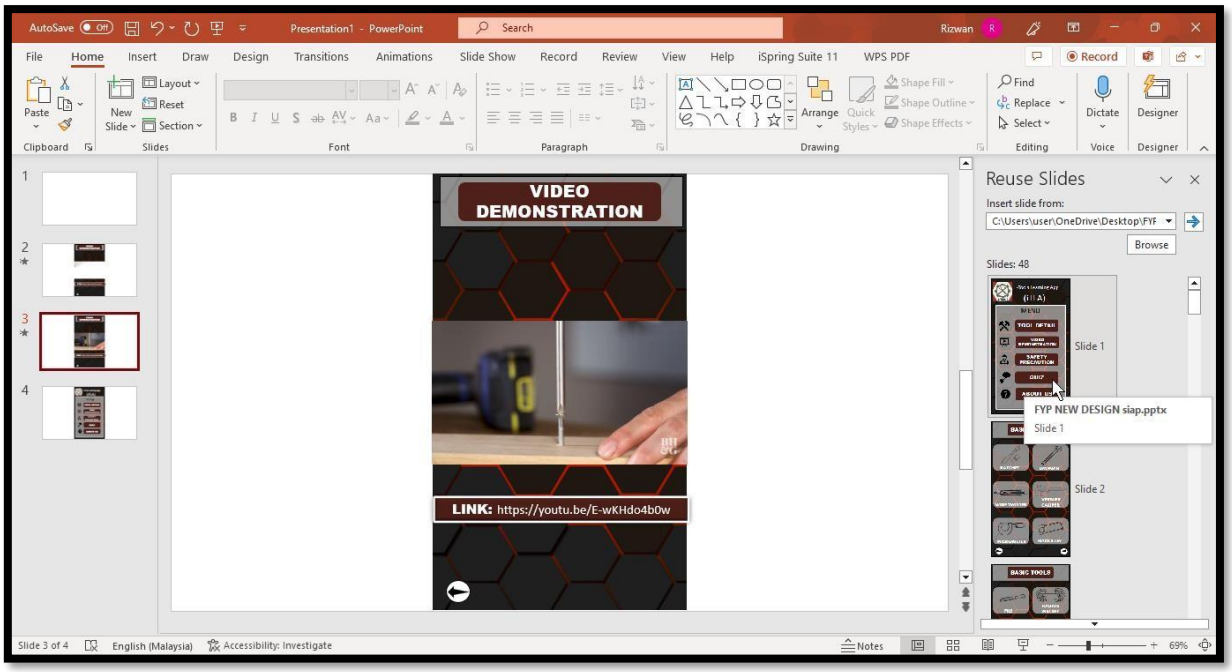


Figure 3.18: Page of Video Demonstration

For the video demonstration section, the video was downloaded from the Youtube. We have made a best selection amongst the all of the video of the tools and downloaded by using website (https://10downloader.com/en/73) to download the video.

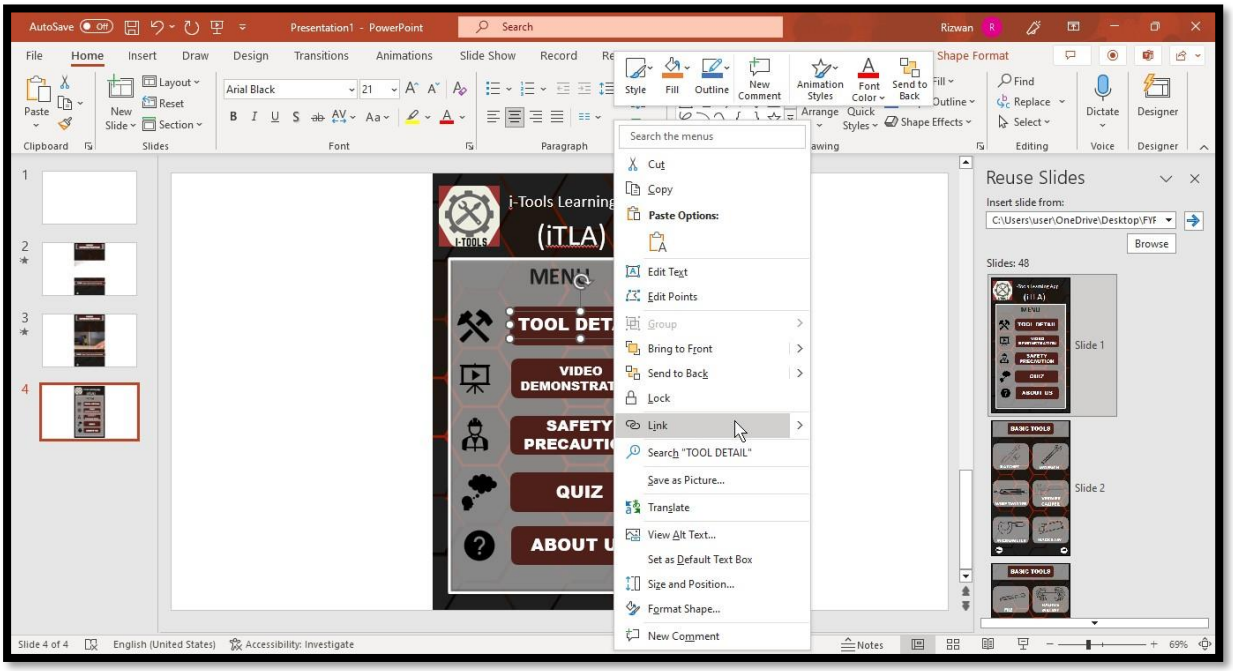


Figure 3.19: Editing of Interface Layout 1

After all the slides have been made, this time we will need to link all the slides as a CTA (Call To Action) button.

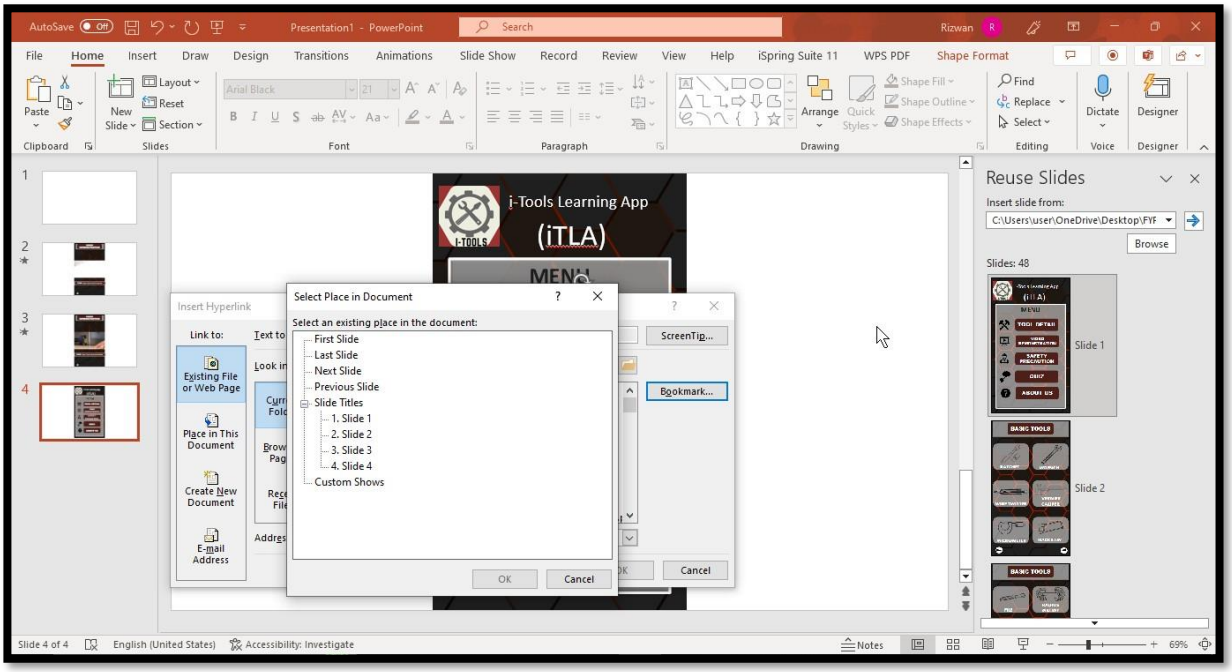


Figure 3.20: Editing of Interface Layout 2

After press the link, press the bookmark and link the CTA button to the slides we want it to go. This action needs to be repeated for all the CTA button you want to do for.

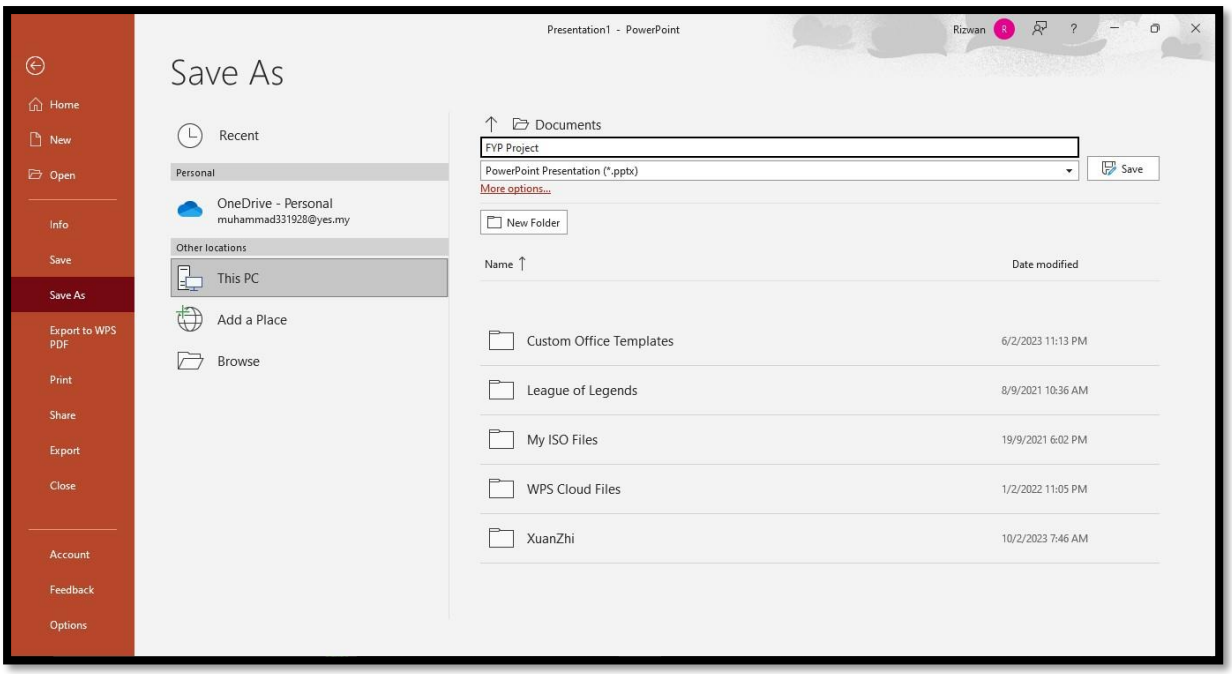


Figure 3.21: Editing to Save Interface Layout

Finally, after done all the link, done forget so save as the folder to make sure the folder not missing.

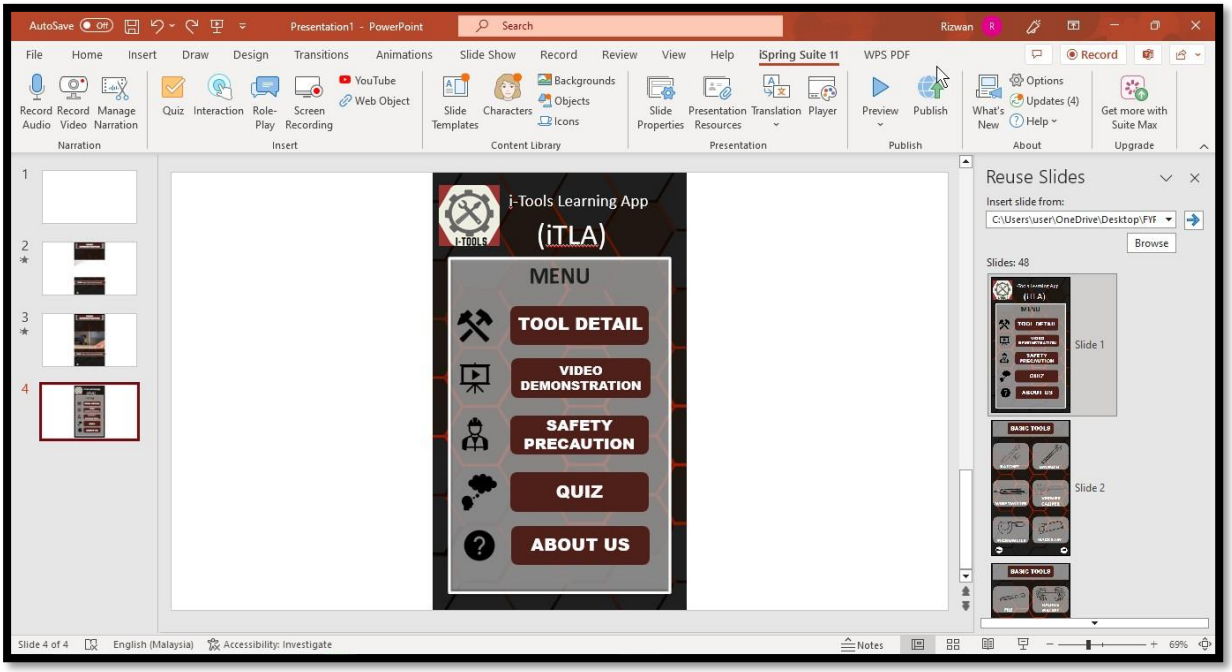


Figure 3.22: Editing of Interface Layout 3

Next, go to the i-Spring suite and press the publish button.

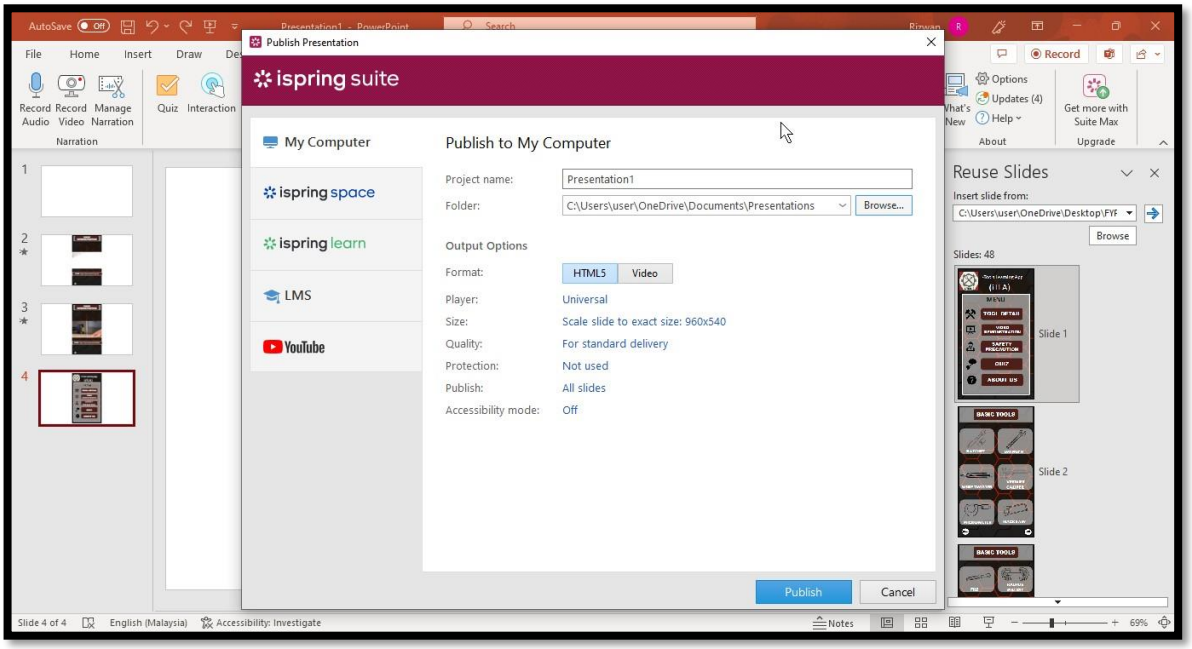


Figure 3.23: Editing of Interface Layout 4

Furthermore, name the folder and select the browse setting. Choose the folder you want to save as or published. Then, press the publish button.

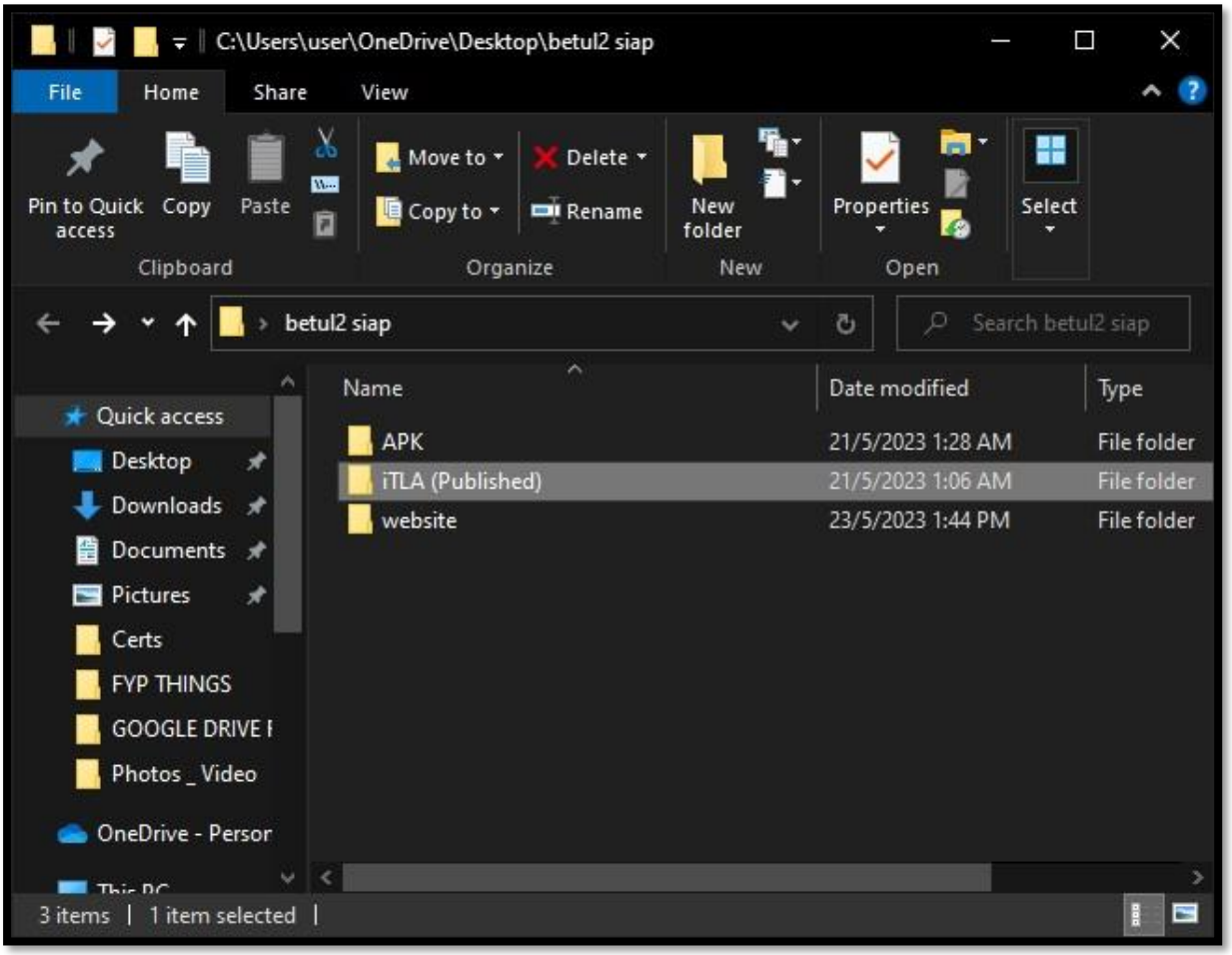


Figure 3.24: Published of i-TLA

Then, the folder name of your save as and have the (published) version.

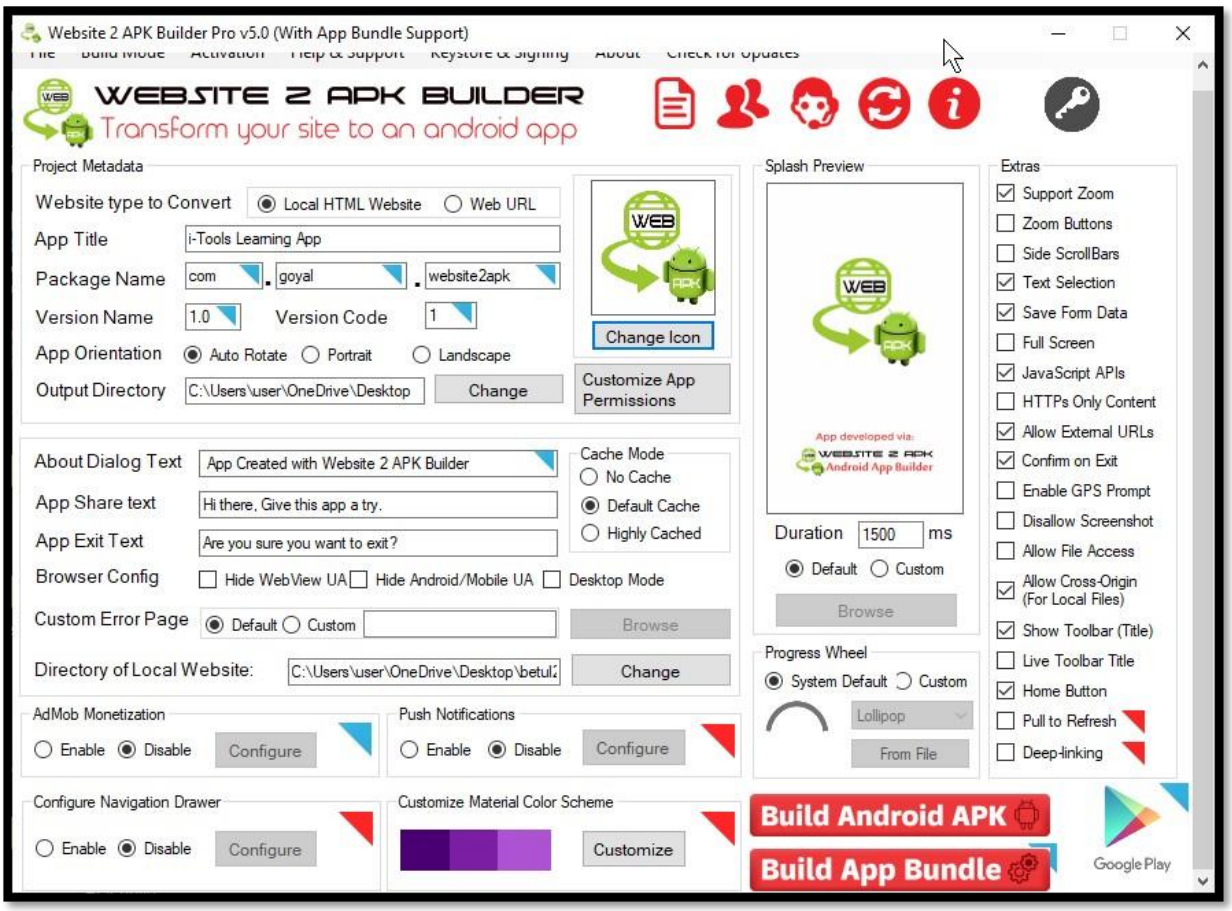


Figure 3.25: Website 2 APK Builder

Lastly, open Website 2 APK Builder and follow the same tick as per inside this image. After that, for output directory, you can choose desktop as your output for the app will go to desktop. Then, for Directory of Local Website, choose the file that has your app name with published tag. Next, the icon you can change it suit to your taste by choosing the file of the image you want for the app looks like inside the phone. Finally, press the Build Android APK button to see the result.

Figure 3.26: APK of i-TLA

Then, the file will look like this. Then transfer it by using any social media such as WhatsApp and telegram to send the file as an APK then install it.

Figure 3.27: i-TLA App Icon

Finally, our app has been completed and it will look like this. Then, you can test it out for finalize the product.

CHAPTER 4

RESULT & DISCUSSION

4.1 PRODUCT DESCRIPTION

4.1.1 General Product Features & Functionalities

For engineering students that have a training module, there is an application called the application of training toolkits. This application has several features including a tool detail, calibration, security precautions, questions and videos on how to use it, images, and a calendar function that serves as a reminder for your classes. Applications like this are available everywhere in the Play Store, but we try to make ours a little bit unique from the competition and more practical. To complete and develop this application, many elements from many applications were used. We hope that our presentation will provide you a clearer understanding of our project.

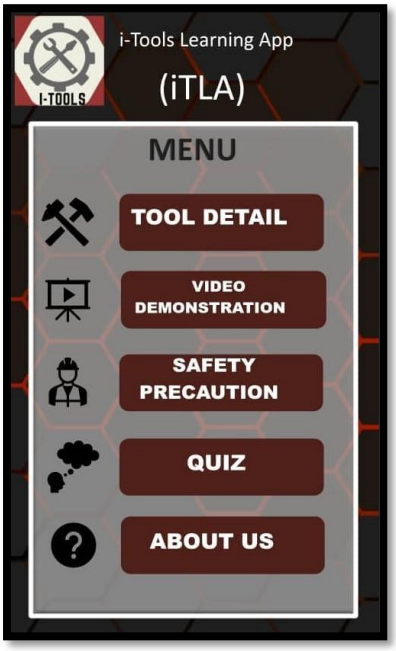


Figure 4.1: Main Menu of i-Tla

4.1.2 Specific Part Features

Figure 4.2

4.1.2.1 Product Structures

The application Workshop Learning Tools offers an integral function that promotes effective learning, skill development, and knowledge acquisition in a workshop environment. These functions are tailored to the unique requirements of those who want to improve their presentation skills and tool usage knowledge.

1. **Tool Details/ Catalog:**

   The application contains a detailed tool catalogue or database of information about tools that are frequently used in workshops. Users can browse the catalogue to discover various tools, read their descriptions, and get detailed information on each tool. Every tool in the catalogue has complete details, including specifications and maintenance instructions. Users can use this information to fully understand what each tool does, what it does, and how to use it correctly.

2. **Video demonstration:**

   The application includes video demonstrations that visually demonstrate how to operate and use the proper techniques for a variety of tools. Users can view these movies to see how tools are used in real-world settings to improve their understanding and practical use.

3. **Safety precautions:**

   The application emphasizes the significance of maintaining a secure workspace by offering precautions and comprehensive security plans for each tool. Users can learn about potential risks, security protocols, and best practices to reduce the risk of accidents and injuries while doing the practical application.

4. **Quiz:**

   Applications may include skill assessments and questionnaires to gauge the user's comprehension of the use of tools, techniques, and security procedures. These interactive evaluations help users assess their progress and find areas for improvement.

5. **Project ideas and inspiration:**

   This application may offer a collection of concepts for classroom projects, creative applications, and motivation for using various tools. Users can explore these concepts to spark their creativity, test out new projects, and enhance the functionality of the workshop.

6. **Offline Access:**

   The application can provide access to previously seen content such as tool details, tutorials, and movies without a connection. Users can access these resources even when they are not connected to the Internet, allowing uninterrupted research and consultation.

7. **User-friendly interface:**

   The application offers a user-friendly interface with intuitive navigation, well-organized content, and quick access to several functions. This makes learning easier and enhances the user's overall experience.

4.1.2.2 Product Mechanism

The Workshop Learning Tool App has combination of technology, data management and user interaction to deliver its functionality. Common product mechanism for apps include:

1. **User interface:**

   The application has an easy-to-use user interface that enables users to easily navigate between various sections and access a variety of functions. The user interface was created to be simple to use, visually appealing, and open to user interaction.

2. **Backend infrastructure:**

   The application has the backing of a reliable back-end infrastructure that controls data archiving, processing, and retrieval. This infrastructure often consists of servers, data bases, APIs (application programming interfaces), and other components required to ensure smooth operation and connectivity.

3. **Tool catalog and details:**

   This application manages a comprehensive tool catalogue that includes a database of information on tools that are frequently used in training sessions. Every tool has specific details, such as specifications, guidelines for use, safety precautions, and maintenance instructions. This information is kept in a database and connected to the appropriate tools.

4. **Video demonstration:**

   This application offers a library of video demonstrations that demonstrate how to use various tools correctly and in a variety of situations. These films connect to the proper tools and tutorials for a seamless integration and are stored in the application's data base or stored on external platforms.

4.1.2.3 Interface Layout

Accessories and finishing products for the Workshop Learning Tools app refer to complementary elements that enhance the user experience, aesthetics, and functionality of the app. This includes:

1. **App icon:**

   An eye-catching and high-quality icon that depicts how Workshop Learning Tools will be applied to the user's device. Users can more easily locate and access their applications with the help of application icons.

2. **User Interface (UI) Design:**

   a well-designed interface that prioritizes usability, intuitive navigation, and aesthetics. This includes designs, color schemes, typefaces, buttons, and other graphic elements used throughout the entire application.

3. **Brand Elements:**

   Consistent brand elements including logotypes, color schemes, and typefaces that fit the application's identity and increase recognition. The brand elements aid in creating a strong visual presence and promote brand consistency.

4. **Illustrations and graphics:**

   Customized illustrations and graphics that enhance the visual appeal of the application's content, tutorials, or tool instructions. These graphic elements help explain complex ideas, provide visual cues, and add creativity and fun to the learning process.

5. **Animations and transitions:**

   Transitions and useful animations that enhance the application's aesthetic appeal, provide feedback on user actions, and create an engaging and interactive user experience. The use of animation can highlight crucial elements, grab the user's attention, or dynamically convey information.

6. **Responsive design:**

   An approach to responsive design that ensures that your application can adjust to various screen sizes and orientations. This enables users to roam between devices like

smart phones, tablets, and desktop computers without experiencing any issues accessing the applications.

7. **Accessibility features:**
   Accessibility features make an application inclusive and simple for people with disabilities to use. This includes features including compatibility with screen readers, adjustable source size, options for color contrast, and alternative text for images.

4.1.3 General Operation of Product

Execute the application in essence, the application Workshop Learning Tools aims to empower users by giving them the knowledge and guidance they need to confidently navigate the world of training. Workshop Learning Tools aims to provide users with a complete and interactive platform for improving their training skills, knowledge, and abilities. Working with the application can be divided into a number of key aspects. The functionality of the application Workshop Learning Tools is made possible by a number of processes and interactions that enable users to use it effectively.

The initial screen offers a simple user interface with intuitive navigation options like menus and tabs that let users explore various application sections. One of the most significant sections is the detailed tool catalogue, where users may look up a wide range of tools that are frequently used in workshops. This application's accessibility to tutorials and guides is a crucial feature. Users have access to numerous tutorials that provide step-by-step instructions for using a variety of tools effectively. These tutorials often provide both textual and visual information to help users comprehend and apply good techniques.

Additionally, the application may offer guidance on certain projects as well as inspiration and creative ideas to help the user put their newly acquired skills to use. Video demonstrations are included in the application to enhance your learning experience. Users can watch these movies to see tools in action in real-world settings and gain a deeper understanding of the techniques and applications used in the real world. These video demonstrations serve as visual aids and round out the application's text and graphic information. A key component of learning in the classroom is safety, and the application takes this into account by providing precautions and comprehensive security plans for each tool. In addition to this information, users have access

to tool details, tutorials, and videos to ensure they have the knowledge they need to maintain a safe work environment and minimize risks.

In conclusion, the Workshop Learning Tools application provides a crucial platform for people to enhance their skills and knowledge throughout the workshop. The application enables users to learn, practice, and develop themselves in a workshop environment with an easy-to-use interface, access to tool details, tutorials, video demonstrations, security policies, and personalized recommendations.

4.1.4 Operation of Product Feature

4.1.4.1 Tool detail

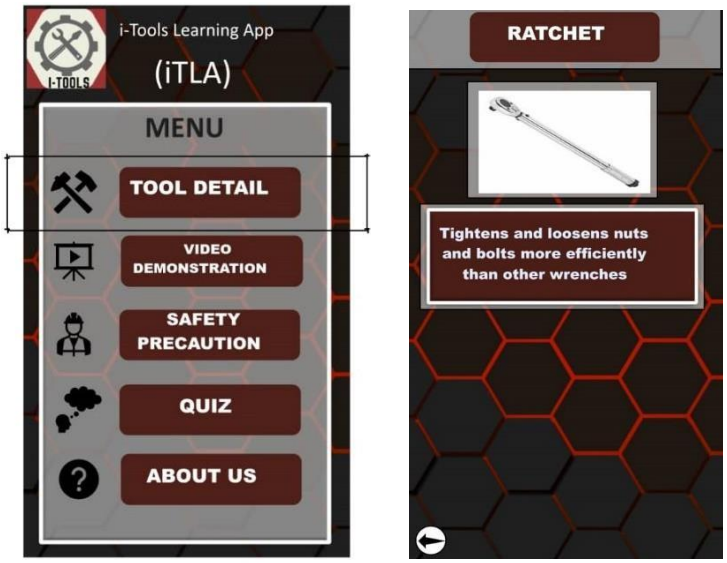


Figure 4.1: Tool Detail of i-TLA

The tool details menu in the training application serves to provide comprehensive information and details on each tool available in the training. enables users to access detailed information about the tools, including their specifications, user guides, maintenance requirements, and illustrations and diagrams.

Key Function:

1. **Tool selection:**
   The "Details of the Tool" menu typically displays a list of all the tools available in the workshop. To view their detailed information, users can choose a specific tool from the list.

2. **Detailed information:**
   When choosing a tool, the menu displays a dedicated screen or section that provides a detailed general description of the selected tool. This information may include the tool's

name, an identification number, or other identifying information. Include a description that serves as a brief summary of the tool's purpose, characteristics, and capabilities.

3. **Visual and Diagram:**

   The tool's details menu may also contain visual aids, such as images and diagrams, to help users better understand the tool's components, structure, and proper use.

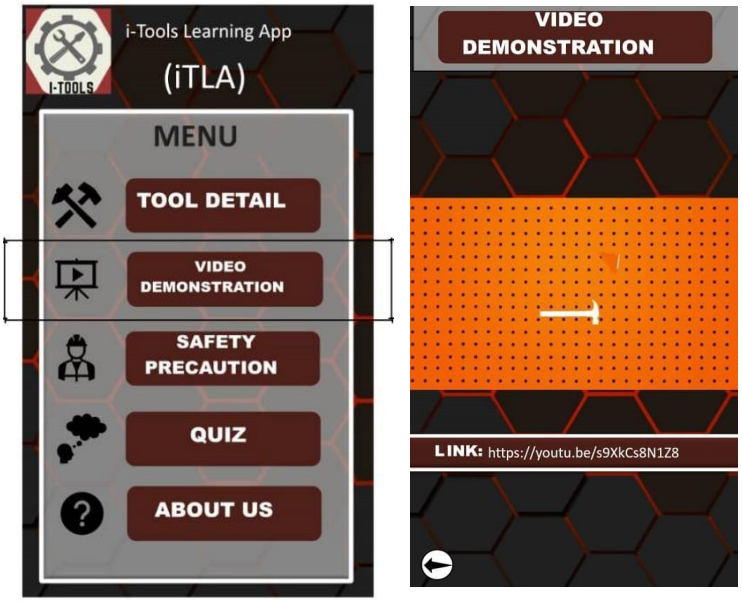


Figure 4.2: Video Demonstration of i-TLA

The users will benefit from this because it will increase their knowledge. The "Details of the Tool" menu ensures that users have access to accurate and thorough information on each tool, enabling them to make well-informed decisions and effectively utilize the tools provided in the workshop. This menu's interface is simple to use. Users can quickly find the information they need about the desired tool thanks to the intuitive menu design and easy navigation, which enhances the user experience overall and increases productivity in the classroom. In general, the tool's Details of the Tool menu serves as an invaluable resource when using the tutorial,

providing users with crucial tool information so they can work effectively, efferently and safely.

4.1.4.2 Video Demonstration

The video demonstration feature of the Workshop Tools application is intended to give users guidance and direction for using various tools safely and effectively in a workshop environment. Improve the learning experience by using visual representations of tool, technique, and best practice operations.

Key Function:

1. **Visual guide:**
   The Demonstrations in video function offers users a library of videos that demonstrate how to use various tools step-by-step. Each video focuses on a certain tool or technique and provides clear visual demonstrations on how to use it.

2. **Tool Features:**
   The tool's characteristics are highlighted in the movies, which also demonstrate how each tool can be used to carry out specific tasks or achieve the goals set forth in the workshop. Users are able to see the tool in use and comprehend its purpose and potential applications.

3. **Technique demonstration:**
   The video demonstrates effective techniques and methods for using the tools. The users learn the proper handling, positioning, and movement techniques for the tools, ensuring that they have the skills necessary to work effectively in the workshop.

4. **Slow-motion and first-person views:**
   Demonstrations on video may include slow-motion or first-person views of specific tools in use or techniques. This feature enables users to see subtle details, useful movements, or precise manipulations that are essential for mastering particular skills.

5. **User-friendly controls:**

   The application's built-in video player has user-friendly controls for reproducing that let users pause, resume, move quickly, or reproduce specific segments of the film. This feature enables users to review certain procedures and techniques at their own pace.

6. **Access without a connection:**

   This application can give users access to previous video demonstrations without a connection and let them watch videos even if they aren't online. This provides constant access to priceless visual learning resources within the classroom. Users can learn and improve their workshop skills by observing the correct methods and techniques shown in the videos. This hands-on learning approach facilitates skill development and mastery of workshop tools.

4.1.4.3 Safety Precaution

Figure 4.3: Safety Precaution of i-TLA

The section on security precautions in the Workshop Learning Tools application plays a crucial role in ensuring the safety and well-being of our users. This section focuses on providing comprehensive information and guidelines for using the tools safely in a workshop

environment. The users can get a wealth of crucial security information and warnings for the particular tools they use by selecting the "Safety Precaution" button.

The main purpose of the "Safety Precautions" section is to inform users about the risks and consequences of using certain tools. This is a necessary for safety rules in order to proceed with any injuries, and damage in the future. Users receive detailed instructions on how to use the tools safely, use appropriate tools, and set up a safe work environment.

To the users, this section offers a wide range of security networks for each tool. This could include details on electrical safety, suitable ventilation, security precautions against fires, and secure storage practices. By understanding and observing these precautions, users may reduce the risk of accidents and create a workplace that is safer for everyone.

4.1.4.4 Quizzes

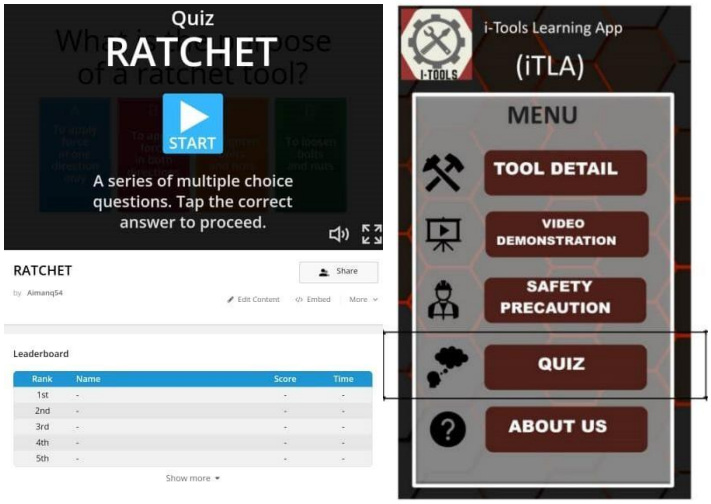


Figure 4.4: Quiz of i-TLA

This app Quizzes section serves an engaging feature designed to assess users' knowledge, advance their learning, and dig a deeper understanding of the concepts covered in the workshop. This quiz offers a number of tools, function, safety practice, or other related to the practical, test and evaluations.

Evaluate the user's understanding is what the main objective of the quizzes. The application contains question that can encourage users to actively engage with all the content and apply

their knowledge in real life situation. The question serves as the tool for self-evaluation, enable users to assess their understanding, point out areas to improve and reinforce their learning outcomes. The quizzes section usually contains a variety type of question such as multiple choices and “Yes “or “No” options. These various questions enable users to gather information, apply the concepts and analyze scenarios related to the workshop’s activities and finding subject and put thinking skills to use

Additionally, the test section frequently provides immediate feedback to the user after the test is finished. This feedback could include accurate responses, explanations, or other information to help users understand the rationale behind each response. The mechanisms of immediate feedback can improve learning experiences by clearing up misunderstandings, reiterating accurate information, and encouraging a deeper understanding of the subject matter.
Additionally, the questionnaire section may have progress tracking features that let users keep track of their performance over time. These characteristic tracks and displays a user's test result, the test's completion progress, or overall test question progress. The tracking of progress aids users in setting goals, carrying out a follow-up on improvements, and maintaining their motivation while continuing the learning path of the workshop.

4.2 PROJECT IMPACTS/ PURPOSE OF PRODUCT

1. **Make it easier for students to understand how to do their task during the class**

   The Workshop Learning Tools application was created to help students understand how to complete tasks during a workshop. This application helps students learn independently and complete assignments by offer detailed tutorials and instructions, also video demonstrations. This lessens the user’s reliance on their lecture’s constant instruction, allows them to work at their own pace, and gives them confidence in their own abilities. The application's comprehensive resources and user-friendly interface give students access to the information they need to comprehend and successfully complete their tasks.

2. **The fundamental knowledge of the tools does not always need to be explained at conferences.**

   The fundamental principles of the tools do not need to be repeatedly explained by the instructors thanks to the Workshop Learning Tools application. This application serves as an essential resource for students to reference when looking out fundamental information about various tools. This application gives the students the knowledge they need to understand the capabilities and uses of the tool they need by providing detailed descriptions, video demonstrations and safety precautions. This saves all lectures and instructors valuable time and allows them to focus on more hands-on instruction, which improves the effectiveness of the training sessions.

3. **The student can understand the fundamental concepts on their own without overly relying on lectures.**

   The use of Workshop Learning Tools allows students to self-learn the fundamental concepts and lessen their reliance on lectures. The students can explore and independently comprehend the fundamental concepts of the tools through interactive tutorials, educational films, and accessible tool details. Users can study at their own pace, review the material as needed, and take notes on their own. This enables students and users to assume responsibility for their own education and have a sense of independence. This application aids students in gaining a solid understanding of the foundations of learning by providing comprehensive resources and stimulating self-directed learning.

CHAPTER 5

CONCLUSION AND RECOMMENDATION

5.1 ACHIEVEMENT OF AIM AND OBJECTIVES OF THE RESEARCH

5.1.1 General Achievement of the Project

Our product worked perfectly well as we wanted referred to our aim and objectives. The app interface options make it easy for users to access any features that we have provided inside the app. The app was successfully designed for engineering students to give them easy access to learn about workshop tools. We also managed to design it to be user-friendly. The interface is easy to navigate, ensuring that students can quickly find information they need without any unnecessary problems. The app also offers compatibility across various devices making it accessible for students to learn about the workshop tools.

5.1.2 Specific Achievements of Project Objectives

5.1.2.1 Product Structure

Our objectives were to design an app for engineering students to have early and easy exposure to workshop tools. For this to be completed, we need to identify students' problems regarding workshop tools. Our product was designed to make it user friendly and to give students new experiences of learning through mobile applications.

5.1.2.2 Accessories and Finishing

Our market value for the app is user friendly which expresses how user can easily understand the operation of our product and this is why we developed an app in easiest way. Thus, the features and interface in the app were finalized in the finishing of our project. For the app interface, we use Microsoft PowerPoint, Canva, Website to APK, i-Spring and finally, WordWall for the quizzes as these applications and software can enhance the value of our app.

5.2 CONTRIBUTION OR IMPACT OF THE PROJECT

The contribution of our project to our society is to give engineering students opportunities to learn about workshop tools anytime and anywhere. Next, the app was designed to make it easier for the public to enhance their knowledge about workshop tools. The impact of our app to society is to lessen the engineering students who do not know how the tools work and how to use them.

5.3 IMPROVEMENT AND SUGGESTIONS FOR FUTURE RESEARCH

5.3.1 Product Structure

The improvement that we aim for in future is the coding version of our product. It must require someone who knows how to do coding, for example, a programmer. Many features can be added if the coding turns out well. Suggestions for our future research is to develop the app that have social features such as Direct Messages that was used in Instagram, so that students can communicate with their instructors through our app.

5.3.2 Accessories and Finishing

To add more qualities to our app we can make a collaboration with quiz platform such as Kahoot!, and Quizizz to make the app more attractive to students to enhance their knowledge about workshop tools.

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APPENDIX A: TASK SEGREGATION

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1.2	PROBLEM STATEMENTS
1.3	PROJECT OBJECTIVES
1.3.1	GENERAL PROJECT OBJECTIVES
1.3.2	SPECIFIC INDIVIDUAL PROJECT OBJECTIVES
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2.1.4	TYPES OF ENGINEERING APPS
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2.2.1	STORYBOARD
2.3	REVIEW OF RECENT RESEARCH AND RELATED PRODUCT
2.3.1	RECENT MARKET PRODUCTS
2.4	COMPARISON BETWEEN RECENT RESEARCH AND CURRENT PROJECT
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2.4.2	PRODUCT B VS OUR PRODUCT
2.4.3	PRODUCT C VS OUR PRODUCT
2.4.4	PRODUCT D VS OUR PRODUCT

	MUHAMMAD RIZWAN HAKEEM BIN ABDUL RASHID
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3.2.1	GANTT CHART FOR AEM
3.2.2	GANTT CHART FOR AEP
3.3	PROJECT FLOW CHART
3.3.1.1	OVERALL AEM PROJECT FLOW CHART
3.3.1.2	OVERALL AEP PROJECT FLOW
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	PRODUCT DEVELOPMENT SOFTWARE

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1.4.2.3	STORYBOARD
1.4.2.4	SOFTWARE DESIGNATION
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	HARITH KHUSYARI BIN MOHAMED FAIROZ
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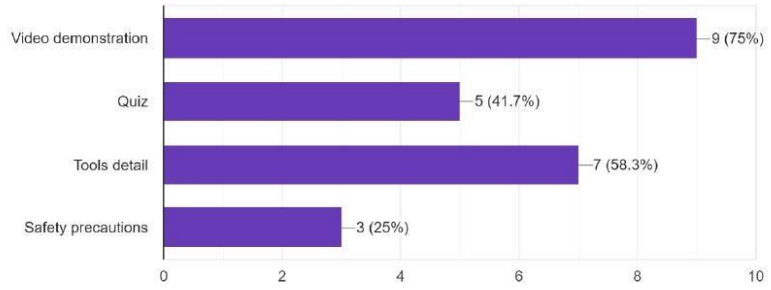
5.3.1	PRODUCT STRUCTURE
5.3.2	ACCESSORIES AND FINISHING

APPENDIX B: POST SURVEY

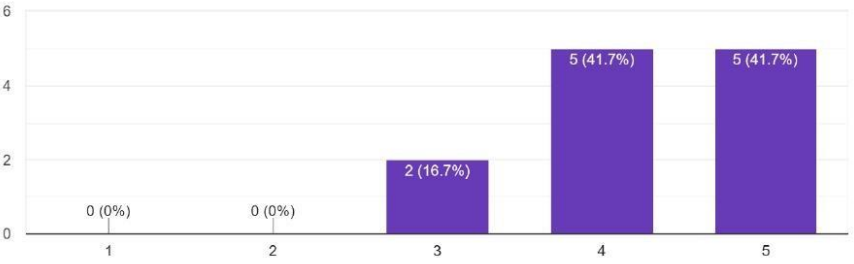
A.4 What is your favorite features inside our apps?

12 responses



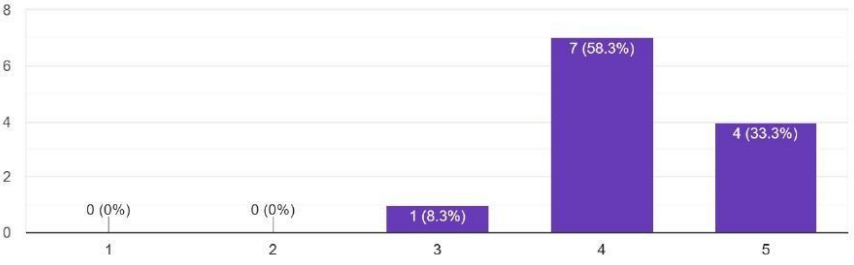
B.1 I am very satisfied using i-tools Learning Apps (i-TLA) ?

12 responses



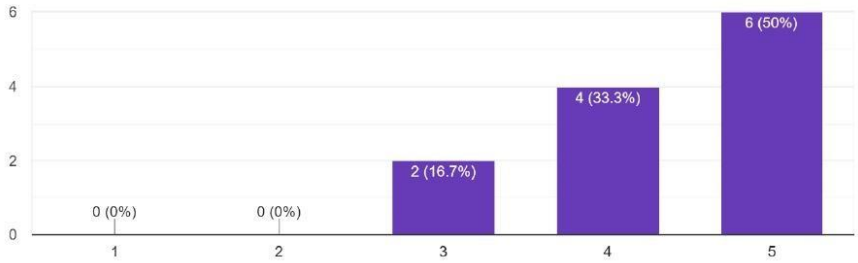
B.2 I would use i-tools Learning Apps (i-TLA) as my reference for my workshop

12 responses



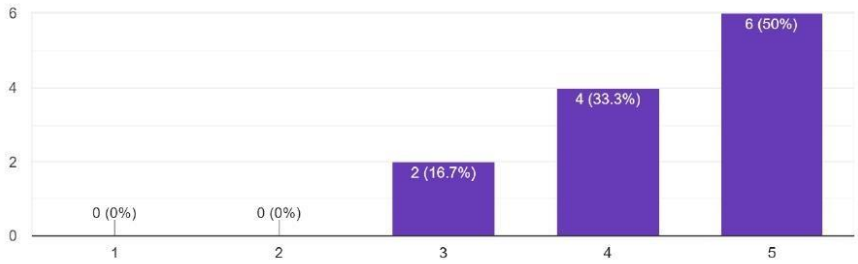
B.3 Using i-tools Learning Apps (i-TLA) can increase my knowledge about tools

12 responses



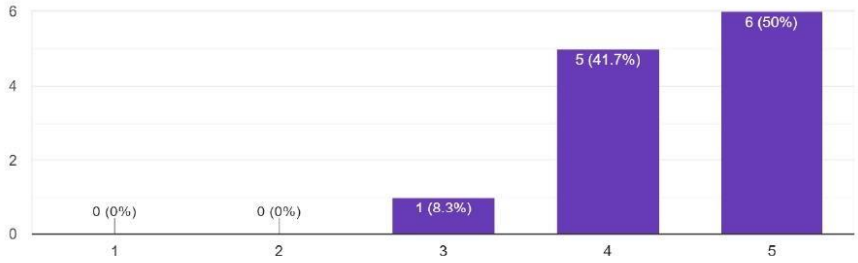
B.4 The time to operate i-tools Learning Apps (i-TLA) are quick and easy

12 responses



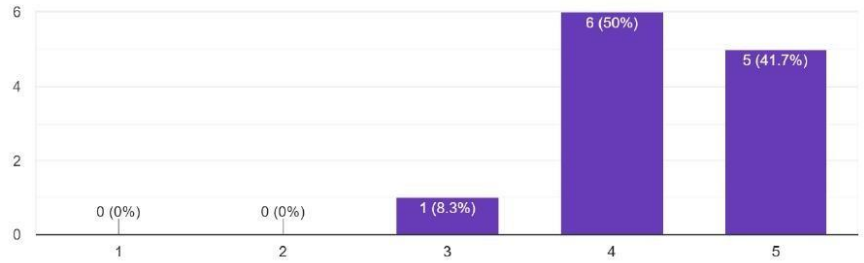
B.5 I would recommend others to use i-tools Learning Apps (i-TLA) as their learning methods

12 responses



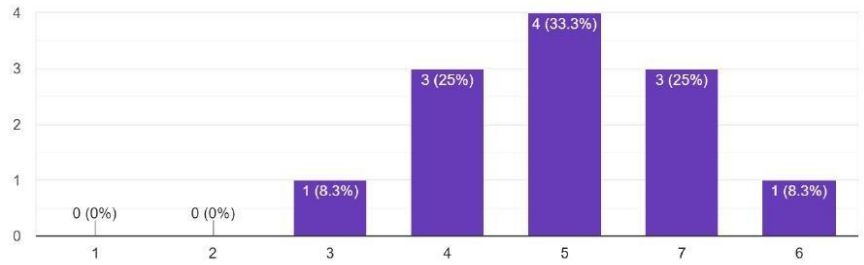
B.6 i-tools Learning Apps (i-TLA) is very interactive apps for students.

12 responses



B.7 i-tools Learning Apps (i-TLA) helps students to understand about the tools easily and interactively

12 responses



APPENDIX C: AEROMECH CERTIFICATION

POLITEKNIK MALAYSIA
BANTING

KEMENTERIAN PENDIDIKAN TINGGI
JABATAN PENDIDIKAN POLITEKNIK DAN KOLEJ KOMUNITI

AEROMECH
POLITEKNIK BANTING

Sijil Penganugerahan

Sekalung tahniah kepada

EN. MOHD ZULFAZLI BIN RAUB KHAN (PENYELIA)
MUHAMMAD RIZWAN HAKEEM BIN ABD RASHID
MUHAMMAD AIMAN QAYYUM BIN RAMLI
NOOR QURRATUANI FATIN BT ABDUL HADI
HARITH KHUSYAIRI BIN MOHAMED FAIROZ

telah menerima anugerah
EMAS

sempena
PERTANDINGAN PROJEK AKHIR PELAJAR
AEROMECH SESI II 2022/2023

dengan tajuk projek
i- Tools Learning Apps (i-TLA)

pada
25 MEI 2023

bertempat di
POLITEKNIK BANTING SELANGOR

POLITEKNIK MALAYSIA BANTING

TS. ZAINAH BINTI RUJIHAN
PENGARAH
POLITEKNIK BANTING SELANGOR

No. SIRI: PBS/UPIK/AN/0011

APPENDIX D: MYIPO CERTIFICATION

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Intellectual Property Corporation of Malaysia
Unit 1-7, Ground Floor, Menara UOA Bangsar, No. 5, Jalan Bangsar Utama 1,
59000 Kuala Lumpur. Tel: +603-2299 8400 Fax: +603-2299 8989
Website: http://www.myipo.gov.my

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Application number	: LY2023W01887	**Date Gazetted:**	:
Application Date	:	**Date Registered**	:
Legal Status	: New Application	**Date of Cert Issued**	:
Date of Legal Status	: 20 April 2023	**Expiry date**	:
Type of Application	: Original	**Date of Creation**	: 15 February 2023
Category of Work	: Literary	**Nature of Work**	: Not Defined
Title of Work	: i-Tools Learning App (i-TLA)		
Language	: English		
Translation	:		
Transliteration	:		
Previous Title of Work	:		
Work Format	: PDF		
Number of Units	: 1		
Word Size	: 780KB		

Author:
Mohd Zulfazli Bin Raub Khan
Default Address: Jabatan Penyenggaraan Pesawat, Politeknik Banting Selangor, Persiaran Ilmu, Jalan Sultan Abdul Samad, 42700, Banting, Selangor, Malaysia.

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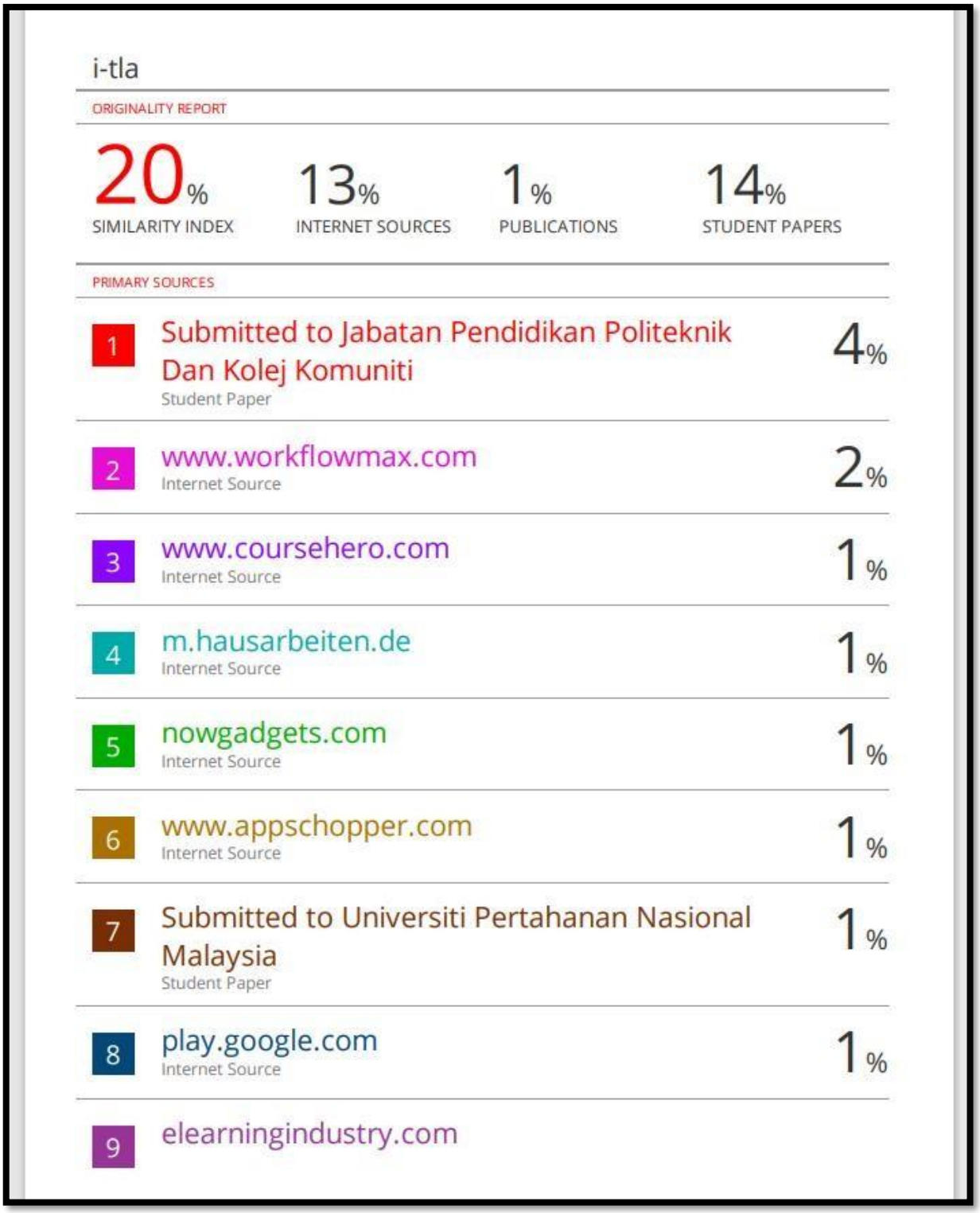

i-tla

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