



**TITLE: ALL IN ONE TENNIS BUDDY**

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**A REPORT SUBMITTED TO DEPARTMENT OF MECHANICAL  
ENGINEERING IN PARTIAL FULFILMENT OF THE REQUIREMENTS  
FOR A DIPLOMA IN MANUFACTURING ENGINEERING TECHNOLOGY**

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**SESI: I 2024/2025**

**TITLE: ALL IN ONE TENNIS**  
**SESI:I 2024/2025**

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2. We represent that ‘ALL IN TENNIS BUDDY Project’ and the intellectual property contained therein is our original work / design without taking or imitating any intellectual property from other parties.

3. We hereby agree to relinquish the ownership of the intellectual property in ‘the Project’ to ‘the Polytechnic’ to fulfil the requirements for the award of Diploma in Mechanical Engineering to us.

Subscribed and solemnly declared by the above named;

1. AFIQ BIN ARIS (24DTP22F1003)

2. MUHAMMAD HARIS FAHIM BIN MOHD SALLEH (24DTP22F1052)

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MR. MOHAMAD PAZLIN BIN SAION

## **ABSTRACT**

This proposal outlines a research endeavor aimed at investigating the efficacy of the “All in Tennis Buddy” in enhancing tennis stroke technique. The primary objectives of this study are to design an apparatus integrating a ball collector function and to fabricate a device capable of providing precise ball trajectory for refining hitting techniques. Central to this investigation is the development of the “All in Tennis Buddy”, a multifunctional training device engineered to optimize stroke proficiency and elevate player skill levels. By collecting and feeding tennis balls in a controlled manner, the device offers players the opportunity to practice shots with consistent ball delivery, thereby facilitating focused skill development and refinement.

Through rigorous testing and analysis, this research seeks to elucidate the impact of the “All in Tennis Buddy” on player performance metrics such as shot accuracy, consistency, and power generation. By contributing valuable insights to the field of tennis training technology, this study aims to inform the design and implementation of future tennis training equipment, fostering continuous innovation in the pursuit of excellence in the sport.

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# CHAPTER 1

## INTRODUCTION

### 1.1 INTRODUCTION

Tennis is an exact and skill-based sport, and acing the different strokes is fundamental to expanding your satisfaction. It is basic to make strides in your preparation whether you are serving, volleying, striking, or utilizing your forehand. Utilizing a tennis ball collector is an intriguing approach to progress your tennis strokes. This convenient device permits you to hone your strokes more productively, saving you the exertion of scooping up balls. In the areas that take after, we'll see into a few ways the tennis ball collector may offer assistance you progress your stroke strategy for different strokes.

Furthermore, this instrument's little plan implies you can carry your arrangement with you wherever you go. You may set up the tennis stroke improving with a tennis ball collector and work on your excitement routinely whether you're on the tennis court, in your yard, or indeed inside.

For tennis players of all aptitude levels, this contraption is progressive due to its special plan and multipurpose highlights. The tennis stroke improving with tennis ball collector is the extreme device to increment your delight, notwithstanding of your goals—improving your procedure, culminating your strokes, or essentially getting a charge out of a more useful hone session. (Kovacs, M. S. (2006)

## **1.2 THEORITICAL BACKGROUND**

To truly appreciate the impact of this apparatus on stroke improvement, it's important to delve into the mechanics behind its functionality. The design of the tool ensures that players can focus on their strokes without the interruption of constantly retrieving tennis balls. This uninterrupted practice time allows for a more immersive and productive training experience.

In addition, the multifunctional capabilities of this apparatus enable players to simulate different game scenarios, thus enhancing their stroke adaptability and precision. By practicing with consistent access to a steady supply of balls, players can fine-tune their strokes, footwork, and overall technique with a higher level of intensity and repetition.

Moreover, the portability of the tool extends beyond the convenience of practicing anywhere. It encourages players to explore various playing surfaces, adapt to different environmental conditions, and ultimately develop a more versatile game.

By understanding the intricacies of this innovative tool, players can fully grasp its potential to revolutionize their training routine and elevate their performance on the court.(Reid,M,&Duffield,R 2014)

## **1.3 PROBLEM STATEMENT**

Within the tennis beginner player a prevalent challenge is the lack of access to quality training facilities. Firstly, the shortage of suitable and publicly accessible tennis courts is a major obstacle. In some areas, factors such as inadequate sports infrastructure or crowded spaces make it difficult for individuals to access the necessary training facilities.

Moreover, the cost of using training facilities is also a significant barrier. Many individuals may have to incur substantial expenses to rent or use training facilities. This renders consistent training inaccessible to those who may have financial constraints. Flexible time management is also an issue, especially among children and teenagers who struggle to allocate sufficient time for training.

## **1.4 OBJECTIVE**

The aim of our research is to comprehensively demonstrate how the tennis stroke improves with tennis ball collector can effectively enhance stroke technique for various tennis shots. We will delve into the specific objectives or research questions to address the following:

1. To design the apparatus that can improve the tennis stroke technique with ball collector function.
2. To fabricate apparatus that provide ball trajectory for improving hitting technique and collector ball.

## **1.5 SCOPE OF PROJECT**

### **1.5.1 TARGET MARKET**

Given the limitations of our resources and time, our research will focus on a specific group of intermediate-level tennis players like a

- Player tennis beginners who want to practice
- New player who wants to join the tennis game
- Senior player who wants to improve their skill

### **1.5.2 LIMITATION PROJECT**

- Ball can only collect to maximum of 10- 15 balls into storage tennis
- Life expectancy for the battery for the moving motor within only 12 hours
- The maximum ball arranged for the feeder is 10 balls in row

## **1.6 THE IMPACT OF THE PROJECT IMPLEMENTATION**

The case study is important as it allows us to examine the real-life implementation and effectiveness of the tennis stroke improve with tennis ball collector. This will provide valuable insights into the practicality and benefits of using this tool in actual training scenarios.

In addition, the case study will allow us to gather direct feedback from the participating players regarding their experience with the tennis stroke improve. This information will be valuable in further refining and improving the tool based on user needs and preferences.

## **1.7 MECHANISM OF OPERATION**

The operation of apparatus involves the player hitting shots towards the net, which then collects and returns the balls for continuous practice. This innovative apparatus provides players with a consistent and uninterrupted practice session, allowing them to focus on their stroke technique. This apparatus is designed to improve stroke technique by providing players (Halfmann, P. 2021)

## **1.8 CONCLUSION**

In conclusion, the tennis stroke apparatus with tennis ball collector presents a promising solution to the limitations of traditional tennis training methods. Through the integration of basic mechanical mechanism and force equilibrium, this innovative tool has the potential to significantly enhance stroke technique for various tennis shots.

## CHAPTER 2

### Literature Review

#### 2.1 INTRODUCTION

Sports equipment is the general term of all kinds of equipment, apparatus and supplies used by people to participate in sports. Tennis is a highly technical sport that requires players to master various skills, including hitting techniques. The integration of technology into tennis equipment has revolutionized the sport, providing players with innovative tools to enhance their performance (Qiu, 2020). Introducing the "2 in 1 Mechanical Innovation of Tennis Ball Collector and Tennis Ball Feeder," this project represents a pioneering advancement in tennis training equipment. Combining the functionalities of a ball collector and feeder into a single, mechanical system, this innovation aims to streamline practice sessions for tennis enthusiasts of all levels. By seamlessly transitioning between collecting and dispensing tennis balls, this apparatus offers convenience, efficiency, and an enhanced training experience. In this literature review, we delve into the construction, the way it functions, the advantages and limitations of this innovative apparatus. The effectiveness of this technique contributes to the performance of the players on the court where the players do not have to waste time to collect many tennis balls for a long time, instead they can use the time and focus on the hitting techniques. (Qiu, 2020)



Figure 2. 1: Tennis Racket and tennis ball

## **2.2 CONCEPT / THEORY**

The "Mechanical Innovation 2 in 1 Tennis Ball Collector and Tennis Ball Feeder" represents a breakthrough in tennis training equipment, combining two important functions into one streamlined apparatus. At its core, this innovation operates on the principles of mechanical efficiency and simplicity, leveraging carefully engineered components to enhance the training experience for tennis players of all skill levels. By integrating the ball collection mechanism with the feeding mechanism, this apparatus not only collects scattered tennis balls but also facilitates continuous training sessions by automatically removing them one by one. The concept embodies a combination of convenience and effectiveness offering players a seamless training solution that optimizes both time and effort on the court. (Skill acquisition in tennis: research and current practice., 2007)

Central to the theory of this innovation is the notion of accessibility and self-directed improvement in tennis training. By consolidating the functionalities of a ball collector and feeder, the apparatus empowers players to engage in focused practice sessions independently, without the need for additional assistance or complex setups. Furthermore, the mechanical design of the apparatus emphasizes reliability and durability, ensuring consistent performance over time and reinforcing its role as an indispensable tool for players striving for continuous improvement in their game. This simplicity shows how tennis skill development becomes easier for everyone, allowing fans from any background to improve their techniques and game. (Koopmann et al., 2020)

## **2.3 THE CONCEPT OF MECHANICAL MOVEMENT**

The concept of mechanical movement involves the study and understanding of the principles governing the motion of physical objects and mechanisms. This project combines mechanical principles to create a multi-functional tool that revolutionizes tennis training. In the context of our project, which involves a 2-in-1 Tennis Ball Collector with Tennis Feeder, mechanical movement plays a crucial role in both the collection and feeding processes. An intricate arrangement of levers, springs and connectors organizes a smooth sequence of movements, enabling a seamless transition from ball collection to feeding, thereby enhancing the training experience for tennis players. Central to the concept of mechanical movement in this innovation is the integration of a dynamic system that optimizes functionality while ensuring user-friendly operation. (Zhang, 2023)

## **2.4 INNOVATION OF TENNIS BALL COLLECT**

The concept innovation of a tennis ball collector introduces a practical solution to the tedious task of manually collecting tennis balls during practice sessions or matches. This innovation involves repurposing a windproof garbage shovel made of metal, which is modified to accommodate tennis balls efficiently. The process begins by grinding the bottom face of the shovel to create a rectangular hole, allowing tennis balls to be easily collected. Additionally, two paint rollers are connected by bolts and nuts to the side wall inside the shovel which has been drilled for bolts and nuts. The paint rollers rotates in the opposite direction with power from the motor to form a mechanism that facilitates the upward movement of tennis balls into the storage compartment.

The functionality of this tennis ball collector is straightforward and user-friendly. To operate it, one simply aims and pushes the hole part of the modified shovel towards the tennis ball. Upon contact, the ball is propelled upwards and accumulated inside the storage compartment. This streamlined process eliminates the need for bending down and retrieving each tennis ball,

thereby saving time and effort for players and coaches alike. (Ball Pickers for Baseball, Softball, Golf, Cricket, Tennis, Ping-Pong, 2023)

Some advantages accompany the implementation of this innovative tennis ball collector. Its design prioritizes ease of use and ergonomics, making it accessible to a wide range of users. Furthermore, the apparatus significantly reduces the physical strain associated with repetitive bending and stooping, particularly benefiting individuals with mobility issues or older players. Additionally, the efficiency of the collector saves time during practice sessions, allowing players to focus more on skill development and gameplay. (Tennis Picker, 2021)

However, despite its practicality, the tennis ball collector does have limitations. One notable drawback is its limited capacity, as only two balls can be collected and stored inside the compartment with each push. While this may suffice for individual practice sessions or casual matches, it may not be sufficient for high-intensity training drills or larger group sessions where a higher volume of balls is required. Nonetheless, despite this limitation, the overall benefits of the concept innovation of the tennis ball collector make it a valuable addition to the tennis equipment market, enhancing the efficiency and convenience of ball retrieval during practice and gameplay.

## **2.5 CONCEPT OF TENNIS BALL FEEDER**

The innovation of the tennis ball feeder represents a significant advancement in tennis training equipment. Constructed from two semi-tunnel metals that have been carefully cut and connected, the feeder is designed to enhance players' hitting techniques while offering convenience and environmental sustainability. The assembly process involves connecting the first semi-tunnel metal to a modified pole, which in turn is linked to a tennis ball collector. The second semi-tunnel metal is then attached to the first using bolts and nuts, with a spring connecting the first semi-tunnel metal to the main pole, creating a seesaw-like mechanism. This 'concept spring' is crucial in facilitating the controlled release of tennis balls from the feeder. Additionally, a retainer at the end of the first semi-tunnel metal ensures that the

balls fall off one by one onto the second semi-tunnel metal, ready to be hit. (Physics Forums, 2009)

The functionality of the tennis ball feeder is also straightforward yet effective. By loading an appropriate number of tennis balls into the first semi-tunnel metal, usually less than ten, players can simulate a continuous stream of shots. The integrated retainer and spring mechanism work seamlessly to release the balls individually, replicating real-game scenarios. As the balls fall and bounce onto the ground, players can practice various hitting techniques such as forehand, backhand, and volley, allowing for targeted skill development and improvement.

The innovation of the tennis ball feeder brings forth several advantages for players. Firstly, it offers a practical solution for enhancing hitting techniques without the need for a coach, enabling self-guided training sessions at one's own pace. Moreover, its reliance on mechanical components eliminates the requirement for power supply, making it environmentally friendly and cost-effective in the long run. However, like any equipment, there are also drawbacks to consider. Maintenance issues may arise over time, necessitating the replacement of rusted bolts, nuts, and springs. Despite these minor drawbacks, the overall benefits of the tennis ball feeder outweigh its limitations, making it a valuable tool for tennis enthusiasts seeking to elevate their game. (Liang et al., 2012)

## **2.6 CONCLUSION**

In conclusion, the "2 in 1 Mechanical Innovation of Tennis Ball Collector and Tennis Ball Feeder" represents a significant advancement in tennis training equipment. The literature review highlights the evolution of tennis training aids, focusing on automated ball collectors, tennis ball feeders, and the integration of both functionalities into a single apparatus. This innovation offers convenience and efficiency for players seeking to enhance their skills. Another advantage is its cost-effectiveness, because apart from the motor, the other reliance is solely on the mechanical part which can slightly reduce operating costs in the long term. This effectiveness makes it an attractive choice for tennis fans of all user levels. Overall, this innovative solution marks a promising direction in tennis training apparatus, providing players with a practical and economical way to improve their game.

# **CHAPTER 3**

## **METHODOLOGY**

### **3.1 INTRODUCTION**

Research methodology is a way of explaining how a researcher intends to carry out their research. Methodology refers to a set of principles, procedures, and practices used to guide a study or a particular area of research. It is a systematic approach to solving problems, conducting research, and developing theories in a particular field or fields. A methodology helps ensure that research is rigorous, reliable, and valid by providing a framework for data collection, analysis, and interpretation. Different methods can be used in different fields such as social sciences, natural sciences, and engineering. This include various data collection methods such as surveys, experiments, interviews and observations. The choice of methodology depends on the research question being investigated and the type of data collected.

## 3.2 FLOW CHART

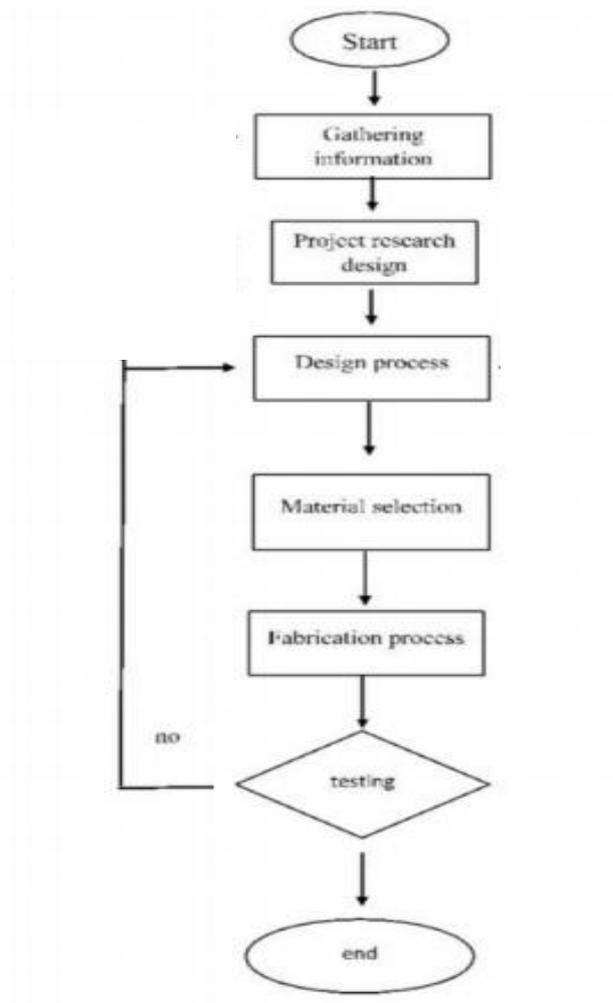


Figure 3.1 : Flow Chart

### 3.3 GANTT CHART

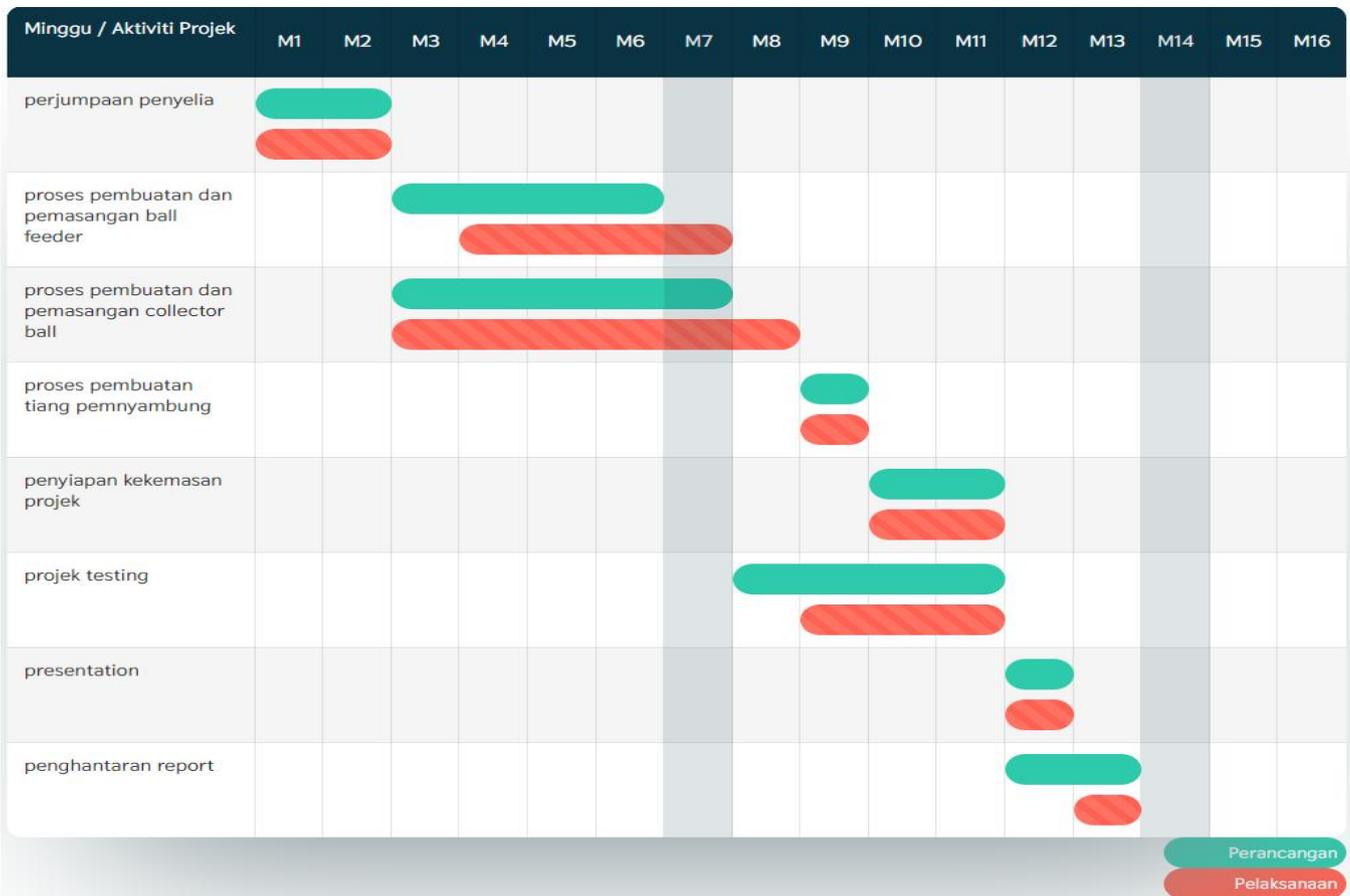
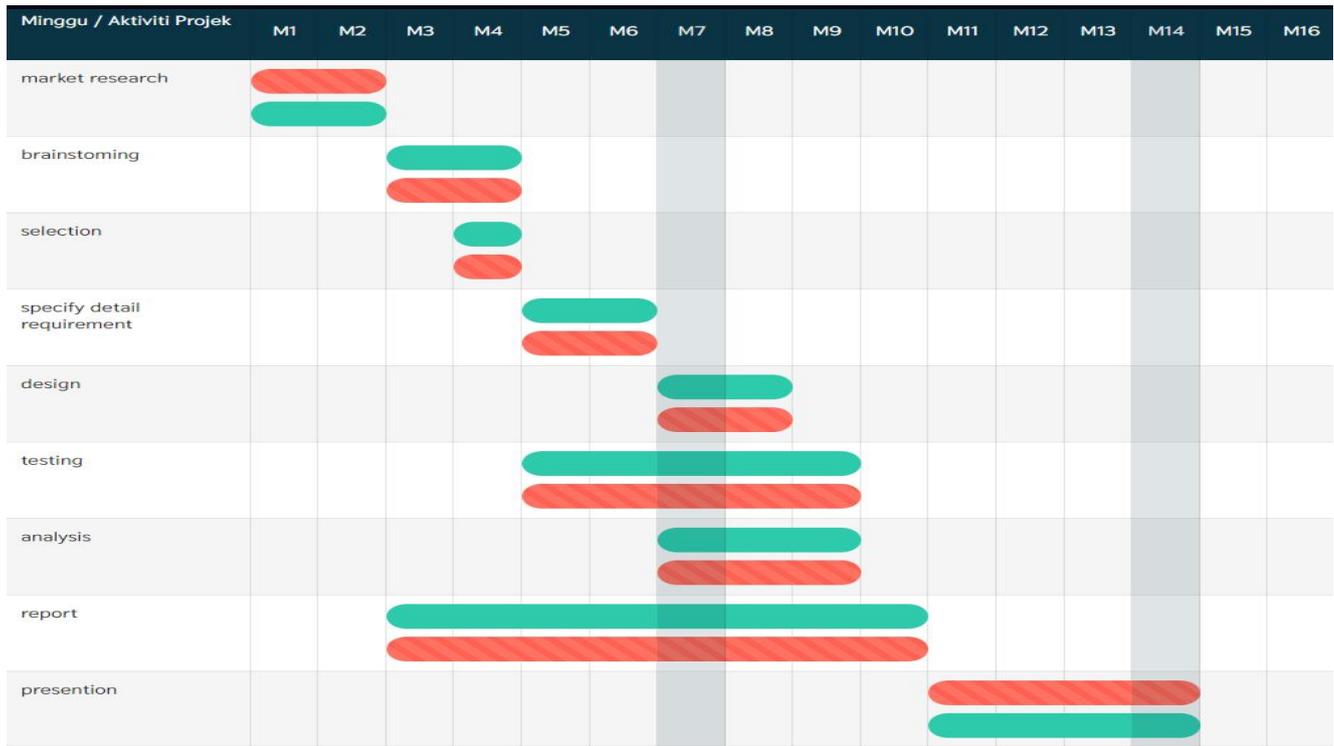


Figure 3.2: Gantt Chart

### 3.4 PROJECT DESIGN



Figure 3.3 :Side View

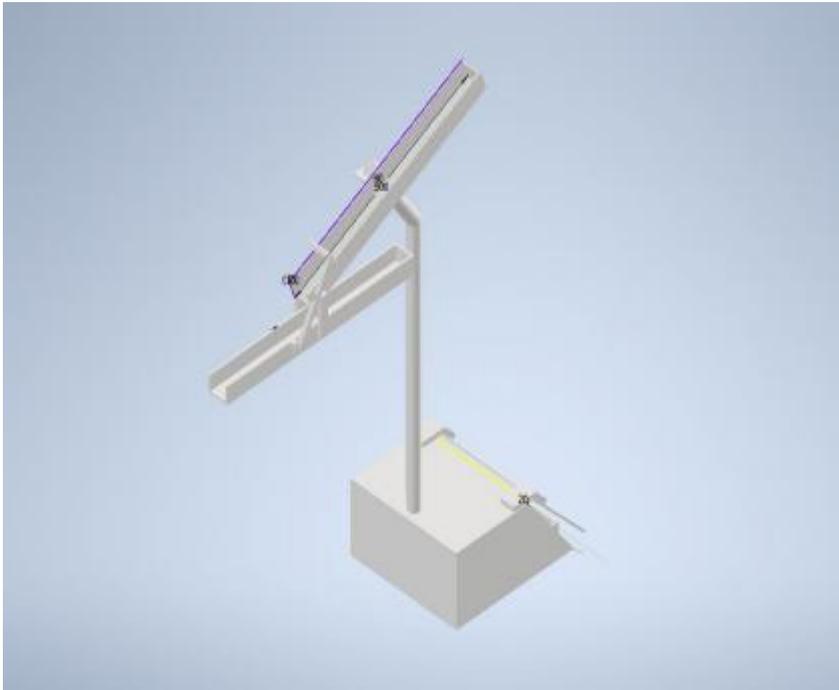


Figure 3.4 :Top View

...

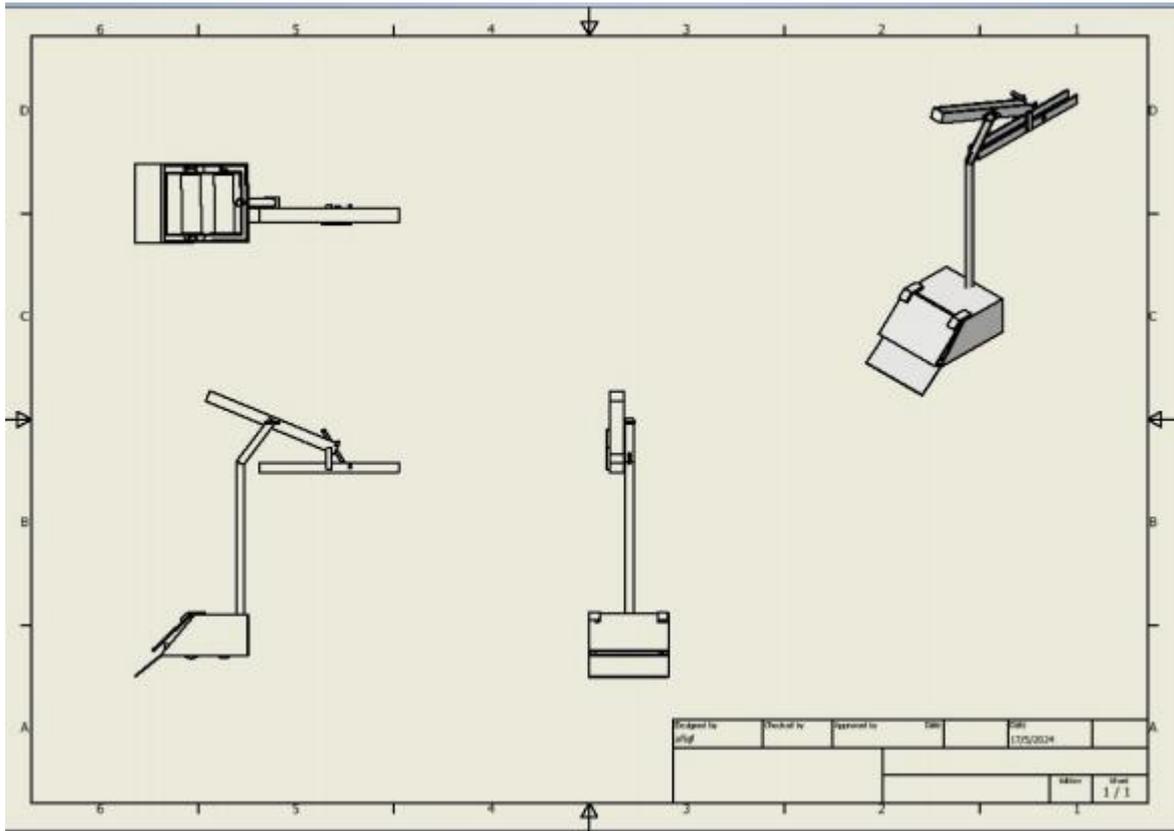


Figure 3.5 :Isometric View

### 3.5 MORPHOLOGY CHART

element	Option 1	Option 2	Option 3
Type of Ball Collector	Manual collector	Automatic collector	Semi-automatic collector
Ball Feeding Method	Gravity feeder	Spring feeder	Electric motor feeder
Ball Storage Capacity	10 balls	20 balls	15balls
Power Source	Rechargeable battery	External power	Human-powered (no motor)
Portability	Fordable	Non-fordable	Compact and lightweight

From this chart we used automatic collector for type of ball collector for ball feeding method we used spring feeder, the ball storage capacity is 15 ball so for power source we used rechargeable battery and for portability

### 3.6 PROJECT PRODUCTION TECHNIQUES

In our project, there are many techniques that we need to produce all in tennis buddy. Among the techniques we need to do to complete our project are :

<p><b>WELDING</b></p> <ul style="list-style-type: none"><li>● We are using metal material such as steel. We are using MIG welding method to join hollow iron cylinder pipe with wheeled open - closable shovel so that it can generate push force and move the tennis ball collector.</li></ul>	
<p><b>DRILLING</b></p> <ul style="list-style-type: none"><li>● We use a drill machine to make hole to support and to ensure that there is no looseness on the tennis ball feeder by using the bolt nut.</li></ul>	
<p><b>CUTTING</b></p> <ul style="list-style-type: none"><li>● We use portable cutt-off to cut iron material with the size that has been measured to make the tennis ball feeder.</li></ul>	
<p><b>MEASURING AND MARKING</b></p> <ul style="list-style-type: none"><li>● We use a tape measure to measure the exact dimensions of our project and a stainless steel marker so we can mark the length measurements that we need.</li></ul>	

## 3.7 BILL OF MATERIAL

### 3.7.1 MATERIALS

COMPONENTS	NO OF UNIT	PRICE PER UNIT	TOTAL PRICE
 TWO ROLLER	2	RM 2.20	RM 4.20
 FLAT STEEL BAR	5	RM 6.50	RM 32.50
 HOLLOW IRON RECTANGULAR PIPE	2	RM 11.00	RM 22.00
 ONE SPARE TENISS BALL	3	RM 2.20	RM 6.80

 <p>SPRING</p>	2	RM 3.20	RM 6.40
 <p>BOLT AND NUT</p>	5	RM 0.80	RM 4.00
 <p>SCREW</p>	10	RM 0.40	RM 4.00
 <p>WIRE STAINLEES STELL</p>	1	RM 1.40	RM 1.40
 <p>STEEL HINGE</p>	2	RM 0.50	RM 1.00
<p>TOLTAL COST</p>	RM 77.70		

### 3.7.2 EQUIPMENT

MATERIAL	FUNCTION
<p data-bbox="236 344 448 376">Measuring Tape</p> 	<p data-bbox="810 344 1310 416">Used to measure the length of material before cutting process</p>
<p data-bbox="236 685 528 716">Stainless Steel Marker</p> 	<p data-bbox="810 685 1302 716">For marking the steel with a clear line</p>
<p data-bbox="236 990 357 1021">L-Square</p> 	<p data-bbox="810 990 1358 1097">Used to create the perpendicular lines and to measure off parallel line with 90 degrees.</p>
<p data-bbox="236 1408 416 1440">Drill machine</p> 	<p data-bbox="810 1408 1358 1476">To tighten screw/bolt and to make a hole on a surface</p>

### **3.7 WORKING PROCEDURE**

All in tennis buddy is made for beginners, and we made some additions to make it easier for beginners with is :

1. Tennis ball collector
2. Tennis ball feeder

Tennis ball collector will work with is players need to push the all in tennis buddy to collect the ball but need to press the on switch on the pushing part of the all in tennis buddy to suck the ball into the storage ball.

Tennis ball feeder will work by the way the player places the ball on the ball path at the top of the feeder and the ball will fall one by one due to the weight behind the feeder and also the spring that can creates an energy that can make the feeder feed the tennis balls to the players.

### **3.8 CONCLUSION**

In conclusion, the proposal introduces an innovative solution that addresses the limitations of traditional tennis training methods. By combining a tennis stroke apparatus with a ball collector, it offers a promising approach to enhancing stroke technique for various shots. Moreover, the integration of a tennis ball feeder into a single apparatus represents a significant advancement in tennis training equipment. Not only does it provide convenience and efficiency for players, but its cost-effectiveness also makes it an attractive choice for tennis enthusiasts of all skill levels. Overall, this proposal marks a promising direction in tennis training apparatus, offering a practical and economical way to elevate players' performance on the court.

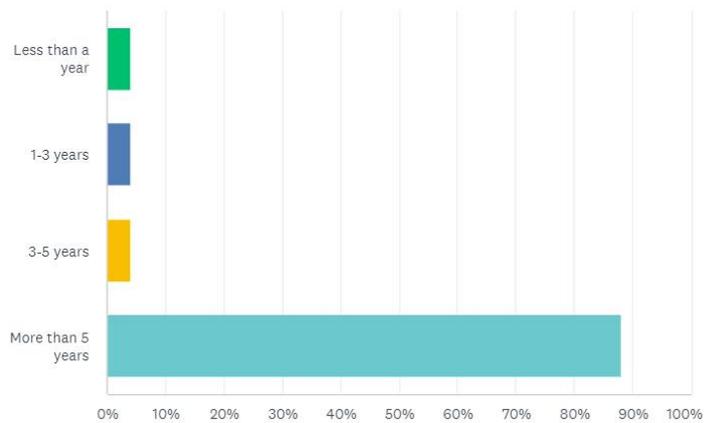
# APPENDIX

Q1

 Customize  Save as ▼

How long have you been playing tennis?

Answered: 25 Skipped: 0

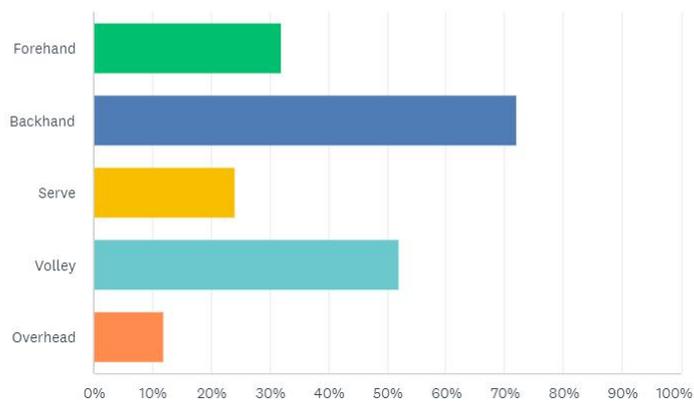


Q2

 Customize  Save as ▼

Which tennis hitting techniques are you looking to improve? Select all that apply

Answered: 25 Skipped: 0

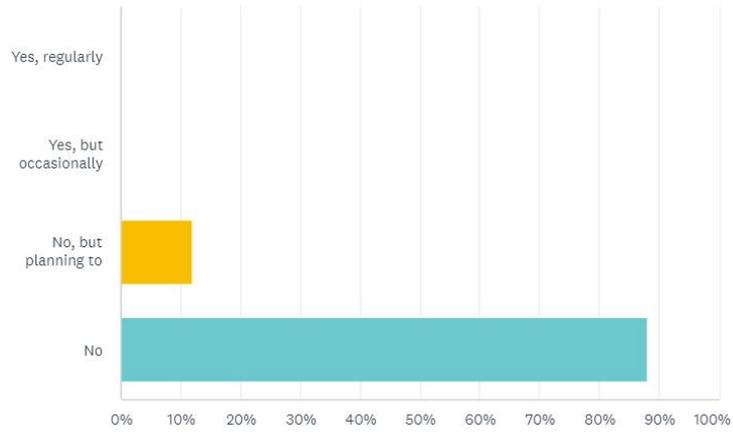


Q4

 [Customize](#) [Save as](#) 

### Do you take professional coaching for tennis?

Answered: 25 Skipped: 0

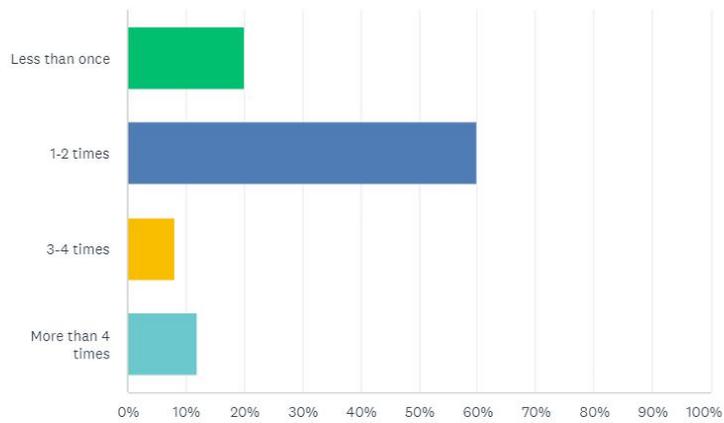


Q3

 [Customize](#) [Save as](#) 

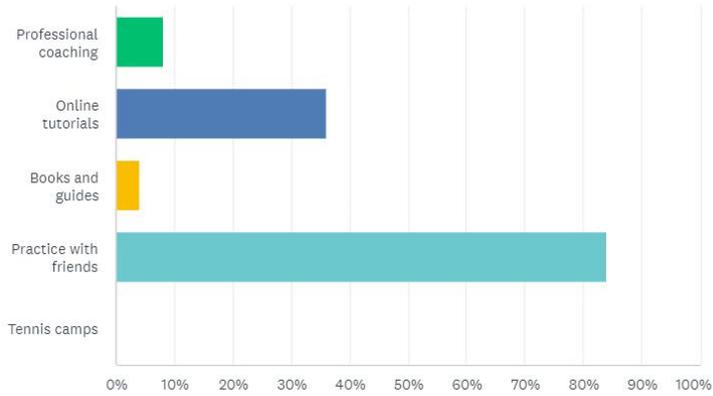
### How often do you practice tennis per week?

Answered: 25 Skipped: 0



What resources do you currently use to improve your tennis skills? Select all that apply

Answered: 25 Skipped: 0



	A	B	C	D	E
1	Collector	Time spend	Ip address	Last modified	Status
2	Survey Tennis player (Weblink)	17:03:47	183.171.102.133	2024-04-21 17:49	Complete
3	Survey Tennis player (Weblink)	2:00	113.211.116.90	22/04/2024 10:08	Complete
4	Survey Tennis player (Weblink)	6:02	183.171.76.246	22/04/2024 10:05	Complete
5	Survey Tennis player (Weblink)	8:09	183.171.29.246	22/04/2024 10:06	Complete
6	Survey Tennis player (Weblink)	4:02	113.211.209.64	21/04/2024 15:55	Complete
7	Survey Tennis player (Weblink)	0:53	183.171.185.46	21/04/2024 15:40	Complete
8	Survey Tennis player (Weblink)	1:11	118.101.159.141	22/04/2024 10:04	Complete
9	Survey Tennis player (Weblink)	10:04:00	180.74.49.81	21/04/2024 15:35	Complete
10	Survey Tennis player (Weblink)	4:02	113.211.135.190	21/04/2024 19:03	Complete
11	Survey Tennis player (Weblink)	2:32	27.125.249.91	4/21/2024 19:03	Complete
12	Survey Tennis player (Weblink)	5:12	175.136.140.181	22/04/2024 10:16	Complete
13	Survey Tennis player (Weblink)	6:08	192.109.205.250	21/04/2024 17:24	Complete
14	Survey Tennis player (Weblink)	1:41	103.26.47.50	26/03/2024 15:55	Complete
15	Survey Tennis player (Weblink)	1:38	115.164.189.1	21/04/2024 18:15	Complete
16	Survey Tennis player (Weblink)	1:57	113.211.116.97	22/04/2024 10:06	Complete
17	Survey Tennis player (Weblink)	2:00	183.171.99.248	21/04/2024 16:26	Complete
18	Survey Tennis player (Weblink)	4:02	115.135.25.18	21/04/2024 16:03	Complete
19	Survey Tennis player (Weblink)	3:47	115.135.26.58	21/04/2024 17:33	Complete
20	Survey Tennis player (Weblink)	0:46	175.140.65.115	22/04/2024 10:09	Complete

Figures during interview session







## CHAPTER 4

### RESULT AND DISCUSSION

#### 4.1 FINAL DESIGN

Based on our project, we made some differences from existing products to make it more efficiently used. We have added more functionality to our project. So, the player will be interested in our design that has many functions. We have 2 functions that can make easy to carry .We make all parts can be installed and removed easily . Another function is the shaft support this can make a feeder ball can be placed at the appropriate height.



figure 4.1 final design

## 4.1.1 ENGINEERING DRAWING

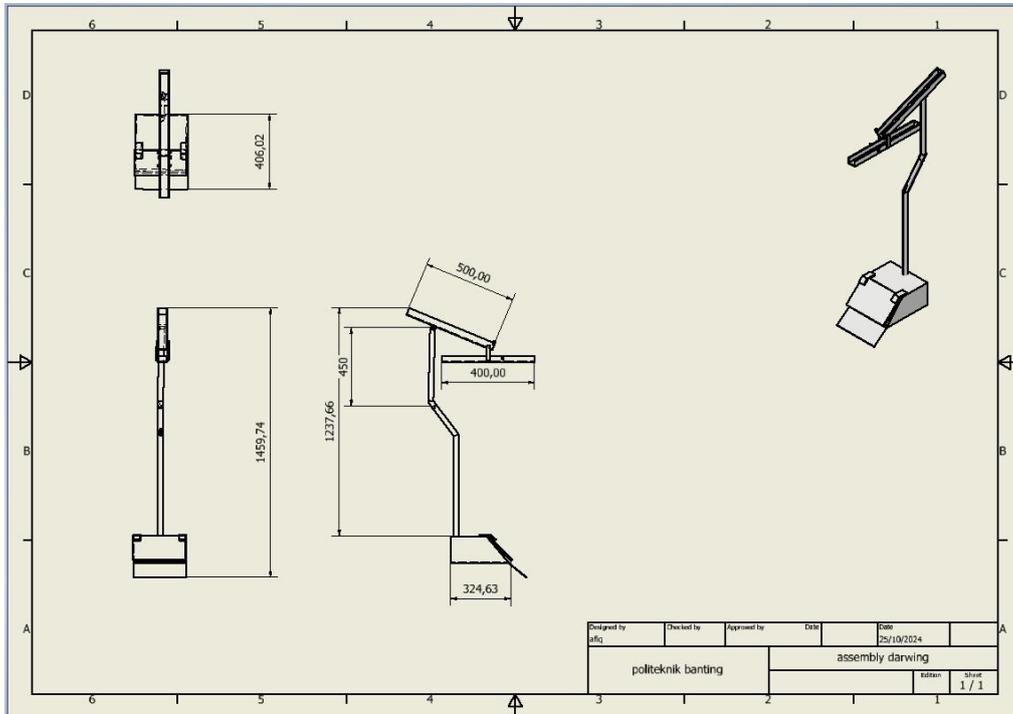


Figure 4.2 new isometric drawing design

## 4.2 ANALYSIS

### 4.2.1 ANALYSIS COST OF MATERIAL

COMPONENTS	NO OF UNIT	PRICE PER UNIT	TOTAL PRICE	SOURCE
TWO ROLLER	2	RM 2.20		RECYCLE
FLAT STEEL BAR	5	RM 6.50	RM 32.50	HARDWARE
HOLLOW RECTANGULAR PIPE	2	RM 11.00	RM 22.00	HARDWARE
ONE SPARE TENNIS BALL	10	RM 2.20		RECYCLE
SPRING	2	RM 3.20	RM 6.40	HARDWARE
BOLT AND NUT	5	RM 0.80	RM 4.00	HARDWARE
SCREW	10	RM 0.40	RM 4.00	HARDWARE
WIRE STAINLESS STEEL	1	RM 1.40		RECYCLE
STEEL HINGE	2	RM 0.50		RECYCLE
MOTOR	4	RM 2.50	RM 10.00	HARDWARE
TOTAL COST			RM 78.90	

## **CHAPTER 5**

### **CONCLUSION AND RECOMMENDATIONS**

#### **5.1 CONCLUSION**

The All In Tennis Buddy project has effectively tackled a number of issues that tennis players, particularly novices, encounter. By integrating a tennis ball feeder and collector into a single device, the project seeks to develop a tool that makes training easier. Without having to deal with the inconvenience of scooping up balls by hand, this equipment enables players to concentrate on improve their stroke techniques.

Through the course of this project, we have created a useful tool that improves tennis training efficiency by enabling uninterrupted practice sessions. The product makes it possible for players to train more often and improve their skills with a variety of strokes. The accomplishment of the project's goals shows how the products might improve training sessions.

## **5.2 RECOMMENDATIONS**

For the All In Tennis Buddy, it is advised to increase the ball capacity and battery life in order to optimize performance and usage. The gadget will function for longer periods of time without requiring regular recharging if the battery life is extended, which makes it perfect for prolonged practice sessions. This guarantees that the machine can function well for hours, which is especially helpful for athletes or coaches who need constant usage during training.

Additionally, the gadget will be able to retain and feed more tennis balls simultaneously if the ball capacity is increased, which would minimize practice disruptions. Players may concentrate more on perfecting their strokes when the ball capacity is higher since they won't have to stop frequently to reload the machine. Training sessions will become more effective as a result, making All in Tennis Buddy Is more useful in situations involving both individual and group teaching. The gadget will offer a more smooth and efficient training experience by taking care of these two issues.

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**JABATAN KEJURUTERAAN MEKANIKAL**

**JADUAL AGIHAN TUGASAN INDIVIDU KUMPULAN PROJEK**

**TAJUK PROJEK : ALL IN TENNIS BUDDY**

SUB-CHAPTERS	DESCRIPTION
<b>NAME OF STUDENT : AFIQ BIN ARIS</b>	
<b>CHAPTER 1 : INTRODUCTION</b>	
1.1	INTRODUCTION
1.2	THEORITICAL BACKGROUND
1.3	PROBLEM STATEMENT
1.6	THE IMPACT OF THE PROJECT IMPLIMENTATION
<b>CHAPTER 2: LITERATURE REVIEW</b>	
2.3	THE CONCEPT OF MECHANICAL MOVEMENT
2.4	CONCEPT INNOVATION OF TENNIS BALL COLLECTER
2.5	CONCEPT TENNIS BALL FEEDER
<b>CHAPTER 3: METHODOLOGY</b>	
3.1	INTRODUCTION
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3.3	GANTT CHART
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4.1	FINAL DESIGN
<b>CHAPTER 5: CONCLUSION AND RECOMMENDATION</b>	
5.2	RECOMMENDATION
<b>NAME OF STUDENT : MUHAMMAD HARIS FAHIM BIN MOHD SALLEH</b>	
<b>CHAPTER 1 : INTRODUCTION</b>	
1.4	OBJECTIVE
1.5	SCOPE OF PROJECT

<b>1.7</b>	<b>MECHANISM OF OPERATION</b>
<b>1.8</b>	<b>CONCLUSION</b>
<b>CHAPTER 2: LITERATURE REVIEW</b>	
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<b>2.2</b>	<b>CONCEPT/THEORY</b>
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<b>CHAPTER 3: METHODOLOGY</b>	
<b>3.6</b>	<b>PROJECT PRODUCTION TECHNIQUES</b>
<b>3.7</b>	<b>MATERIALS /MATERIAL COST/ EQUIPMENT MATERIALS</b>
<b>3.8</b>	<b>WORKING PROCEDURE</b>
<b>3.9</b>	<b>CONCLUSION</b>
<b>CHAPTER 4: RESULT AND DISCUSSION</b>	
<b>4.2</b>	<b>ANALYSIS</b>
<b>CHAPTER 5: CONCLUSION AND RECOMMENDATION</b>	
<b>5.1</b>	<b>CONCLUSION</b>

Pengesahan Penyelia Projek :

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Nama : MR. MOHAMAD PAZLIN BIN SAION

