POLITEKNIK SULTAN SALAHUDDIN ABDUL AZIZ SHAH

SAFETY LAPTOP

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(08DMP18F1046)

LAPORAN INI DIKEMUKAN KEPADA JABATAN KEJURUTERAAN MEKANIKAL SEBAGAI MEMENUHI SEBAHAGIAN SYARAT PENGANUGERAHAN DIPLOMA KEJUTERAAN MEKANIKAL

MECHANICAL ENGINEERING DEPARTMENT

JUNE 2020

CONFIRMATION OF THE PROJECT

This "Safety Laptop" report has been found, reviewed, and verified to meet project requirements and requirements as defined by our own work from the sources mentioned.

Checked By :

.....

(ENCIK ROSLAN BIN KAMARUDDIN)

APPRECIATION

Grateful to the Divine wish and generosity on the visit of Prophet Muhammad with His permission we were able to successfully complete this final project within a given period of 2 semesters over 12 months or a year without facing any difficult problems as a condition of conferring Diploma in Engineering Mechanical session of December 2019. We would like to thank everyone involved directly and indirectly, especially our supervisor Mr. Roslan Bin Kamarudin who has provided us with all the necessary guidance, advice, encouragement and criticism until we have successfully completed this final project report. Not to mention parents and friends who have been very helpful in terms of finances and finances in completing this final project assignment. With this we are grateful and grateful to Allah's wish and thus we have successfully completed this final project. We hope this report can serve as an example and a guide to future parties.

ABSTRACT

A laptop or notebook is a personal computer for mobile use. Laptop are also small and can be easily integrated anywhere with the integration of components from desktops, including displays, keyboards, pointing devices and even speakers into one unit. It weighs about 1 to 6 pounds depending on size, material and specification. The source of electricity comes from the battery or A/C adopter that can be used to charge the battery and start the computer itself. Laptop batteries generally last about 1 to 6 hours depending on the way they are used, the specifications and the size of the battery. The mobile computer was originally based on the CRT monocrome and was later developed into a modern laptop. As a mobile computer, it has become smaller, lighter, cheaper, more powerful and its display larger and its quality increasing. With improved technology, the use of laptops is more widespread for various purposes.

ABSTRAK

Komputer riba atau note book merupakan komputer peribadi untuk penggunaan secara bimbit. Komputer riba juga ianya adalah kecil dan dapat dibawa ke mana-mana dengan mudah adalah integrasi komponent daripada komputer atas meja, termasuk paparan, papan kekunci, peranti petunjuk dan juga pembesar suara ke dalam satu unit. Beratnya sekitar 1 hingga 6 kilogram bergantung pada ukuran, bahan dan spesifikasi. Sumber elektrik berasal dari bateri atau adoptor A/C yang dapat digunakan untuk mengecas bateri dan menghidupkan komputer itu sendiri. Bateri komputer riba pada umumnya dapat bertahan sekitar 1 hingga 6 jam bergantung pada cara permakaian, spesifikasi dan ukuran bateri. Komputer mudah alih, asalnya berdasarkan monokrome CRT dan selepas itu dibangunkan menjadi komputer riba yang moden. Sebagai komputer mudah alih, ia telah menjadi lebih kecil, ringan, murah, lebih berkuasa dan paparanya lebih besar dan kualitinya juga bertambah. Dengan teknologi yang bertambah baik, penggunaan komputer riba lebih meluas untuk pelbagai tujuan.

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CHAPTER 1 : INTRODUCTION

1.1 INTRODUCTION ABOUT PROJECT

- Laptop are one of the most valuable items used to make it easy and convenient for every user to do their work, play games and so on. Laptop also serve as a guide to surfing the Internet for users to make it easier to interact with family and friends or facilitate and speed up information search. There is a need for the use of this laptop especially for students, workers who are required to use the laptop. This is why laptops are the focus for people to own them after their handphone.

  Laptop also have larger screens than handphones to make it easier for users to use laptops. In addition, laptops also have larger GB to accommodate large GB for download for students, laptops can also be connected to printer or USB. There are more conveniences that can be done in a laptop such as facilitating work faster when pressed back while typing it can back up a deleted answer.

  Safety laptop is very important for every user who uses a laptop. This is because, a laptop is one of the most valuable facilities. This makes it possible to prevent laptops from frequent loss or theft. This facility is very effective in controlling the rate of loss of laptops in a place where it is used by office workers, students and others.

1.2 PROBLEM STATEMENT

The percentage of theft and loss of laptops is increasing not only among teenagers, but also the office workers. This is because of the attitude of some of the laptop users who have neglected or forgotten to put the laptop.

Among them is the attitude of laptop users who like to place valuables everywhere or left behind. In addition, cases of theft have become more widespread now. It doesn't matter where people are or where they are. This will result in loss and theft as well as loss and wastage to the user.

1.3 RESEARCH OBJECTIVE

i) Reducing the loss of laptops due to their own carelessness.
ii) Disciplining own to be more careful about placing valuable items.
iii) Lessen the rate of laptop theft increasing day by day based on laptop theft statistics.

1.4 RESEARCH QUESTION

i) What it lessen laptop loss?
ii) What it change the attitude of laptop users?
iii) What it lessen laptop theft rates?

1.5 SCOPE OF THE RESEARCH

- This research is conducted around Shah Alam and Kuala Lumpur which is the area with high rates of loss and theft cases such as office, area higher education institutions for students and lecturer and certain places.

1.6 IMPORTANCE OF THE RESEARCH

- Safety Laptop is an exciting feature that will save laptop users from losing as it can reduce the loss or theft of laptop users. This facility is very effective in helping control laptops from theft and indirectly reduces theft rate in a location where GPS is installed on the laptops. It also prevents users from losing or stolen laptops in the area.

1.7 SUMMARY

- The issue of rising current has been the cause of the loss of laptops for nearly a decade. Overall in this chapter such as the background of the project, problem statement, research objective, scope of the research and importance of the research have been discussed to address the issue against current flow through the safety of the laptop which is built as security and as a convenience to the laptop user.

CHAPTER 2 : LITERATURE REVIEW

2.1 INTRODUCTION

Literature review is the research is based on the true theory and is used in related fields such as journals, articles, books and newspaper studies. Therefore, in this chapter several theories related to this study will be discussed such as laptop loss and theft.

2.2 HISTORY ABOUT LAPTOP

In the modern era, people increasingly create advanced technologis. Therefore, to produce a technology should do a deeper study. Literature revision is a reference and guidance used to ensure the design is designed to meet the engineering specifications and to meet the needs of the users now to be commercially locally and internationally. This study should be implemented to fulfil the allowed features. It is important that the design corresponds to design engineering aspects.

At the beginning of the study, planning was made to ensure the design will be fulfilled. The concept of project scope so as to meet the desired project. Efforts to seek reference materials are an important factor to ensure the effectiveness of the overall project and report. Hence, a number of information related to the project has been searched and collected so that the project is well known and able to function properly. The results of the study will be processed and applied in design to meet the precise specifications and meet the requirements of the diploma project.

2.3 THEORY

In project production, technology plays a role for work that runs smoothly and systematically. With this Safety Laptop, users will no longer be afraid of losing your laptop. This is because this Safety Laptop will be more secure than a regular laptop. Initially, the existing laptops in the market were simply laptops without the tools of coordinate tracking in case of unwanted cases.

In the event that a student loses this laptop, it will cause problems for the students because they cannot locate and locate the laptop. Therefore, the process of planning and executing the project is important to make it easier for users.

2.4 PREVIOUS RESEARCH

In this chapter, there will be discussion and description of information that related of the project to ensure that the selected component is the best and appropriate to my project such as, Arduino Uno R3, GSM SIM900A Module and Piezo Buzzer. All the components that already mention is related to each other in my project.

Theoritical Approach

1) **ARDUINO UNO R3**

The Arduino Uno R3 is a microcontroller board based on a removable, dual-inline-package (DIP) ATmega328 AVR microcontroller. It has 20 digital input/output pins (of which 6 can be used as PWM outputs and 6 can be used as analog inputs). Programs can be loaded on to it from the easy-to-use Arduino computer program. The Arduino has an extensive support community, which makes it a very easy way to get started working with embedded electronics. The R3 is the third, and latest, revision of the Arduino Uno.

2) **GSM SIM900A Module**

The SIM900A is a readily available GSM/GPRS module,used in many mobile phones and PDA. The module can also be used for developing IOT (Internet of Things) and Embedded Applications. SIM900A is a dual-band GSM/GPRS engine that works on frequencies EGSM 900MHz and DCS 1800MHz. SIM900A features GPRS multi-slot class 10/ class 8 (optional) and supports the GPRS coding schemes CS-1, CS-2, CS-3 and CS-4.

3) BUZZER DC3-24V

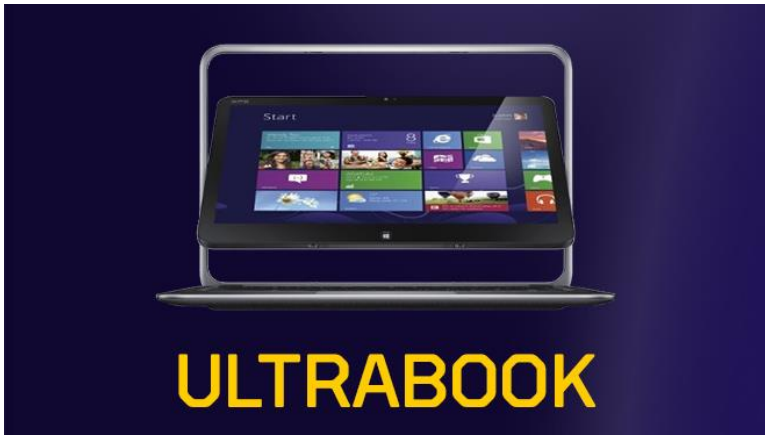
Powered by 3-24VDC, red wire connecting to the positive side, black wire connecting to the negative side. The buzzer won't function if the polarity is reversed.

Specifications

- Power: 3V – 24V DC
- Diameter: 30 mm
- Height: 15 mm (0.59")
- Buzzer Level (10 cm away): 88dB

RESEARCH TYPES OF LAPTOP AVAILABLE IN THE MARKET

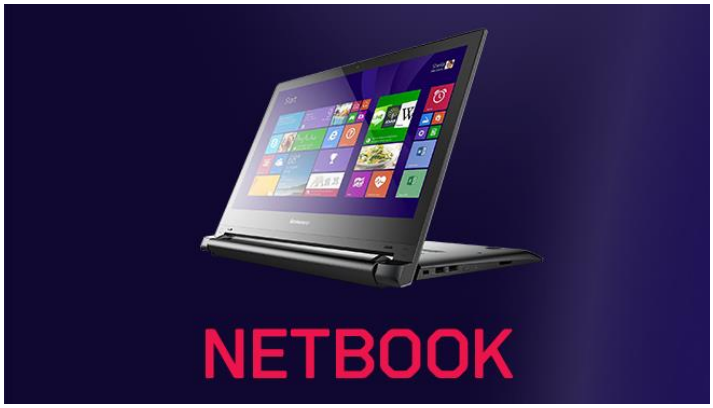
a) ULTRABOOK



An Ultrabook is like the Ryan Gosling of computers. It looks good. The Ultrabook is a sleek, high-end, and often convertible laptop (meaning you can do away with the keyboard when necessary) device that meets specific criteria set forth and trademarked by Intel.

They have superior performance power due to their heavy duty Intel core processors and an extended battery life that exceeds a minimum of five hours. Of course, the downside of the high-end design of these 2-in-1 laptops is a high-end price tag. The Ultrabook ain't cheap – but it's the best laptop if you need the extra torque the Intel processor provides for multimedia presentations, running applications, or watching videos in HD.

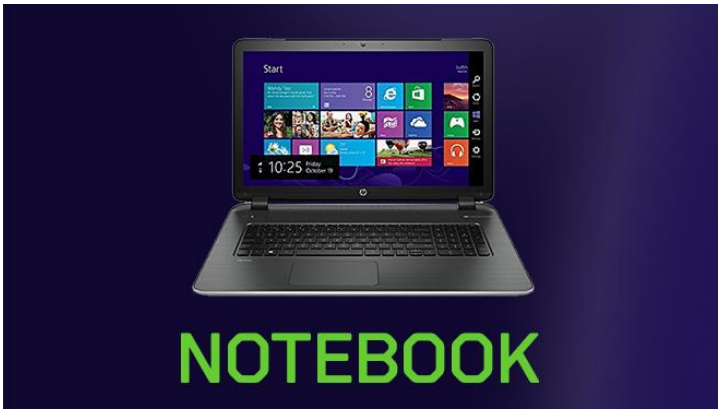
b) NETBOOK



On the outside, a Netbook looks kind of like an Ultrabook. It's slender and lightweight, but what it's missing is the hardcore computing power of Ryan Gosling, I mean the Ultrabook. Of the three, Netbooks are the smallest laptops — typically they weigh less than a kilogram (or less than two pounds). They also have a screen size of less than 11 inches, so if a large display is a must, then you may want to consider an Ultrabook or a Notebook.

As an added bonus, Netbooks start at around $300.00. With that kind of affordability, the Netbook is a great option if you're in the market for a new computer.

c) NOTEBOOK



A Notebook is a little larger than either the Netbook or Ultrabook, and also has an optical drive, which you could use to watch the Redbox DVD you never returned of THE Notebook, starring none other than Ryan Gosling.

The Notebook (the computer, not the movie) has become synonymous with what most people would consider a "regular" laptop. This device is designed to be used like a desktop (remember those dinosaurs?) that you can take anywhere. Notebooks also have the largest screen size compared to other laptops, so if your job requires video/photo editing or you like watching HD videos, then a Notebook is the best laptop for the job.

However, Notebooks, as traditional laptops lack the 2-in-1 laptop style of the Ultrabook, making them a bit more cumbersome.

2.5 SUMMARY

For the conclusion, this chapter tells about the concept or theory and the prior research of laptop. In the previous review, there are three different types of laptop. Among these three references, there are several techniques and concepts that can be used in producing this project. Systematic planning on the concept or theory in producing the project also plays a role to secure the project that operates smoothly and has a proper arrangement of mechanisms.

CHAPTER 3 : METHODOLOGY

3.1 INTRODUCTION

What is methodology? A methodology is a plan-of-attack, especially when that plan-of-attack is used repeatedly. This might be obvious, but the word methodology is related to the word method. In fact, a methodology is a system of methods followed consistently. Scientists, for example, use various methodologies as they perform experiments. It might seem like the world is nothing but chaos and disorder. But actually, sometimes there is a method to this madness. And sometimes there's a methodology.

Design is one way to make a product. Methodology that can be used is to help and innovate some stuff for creating a product that is creative and innovative for reaching our objective product. Other than that, methodology is a system that includes steps and principles that have been used in some activity. Function methodology is to launch a way for some design to make products that are systematics and high intensity. Using step:

P - Problem (design something new)

R - Research (investigation)

I - Invention (project creation methodology)

M - Modification (customization)

E - Evaluations (Rate)

Every step in chart methodology needs to be understood first , it's important for the launch project that will work . Every time we use to settle down our project , () every step that we do from our group member we use :

- Process design product
- Process choosing component and material
- Process combine component
- Process testing project

3.2 METHODOLOGY CHART

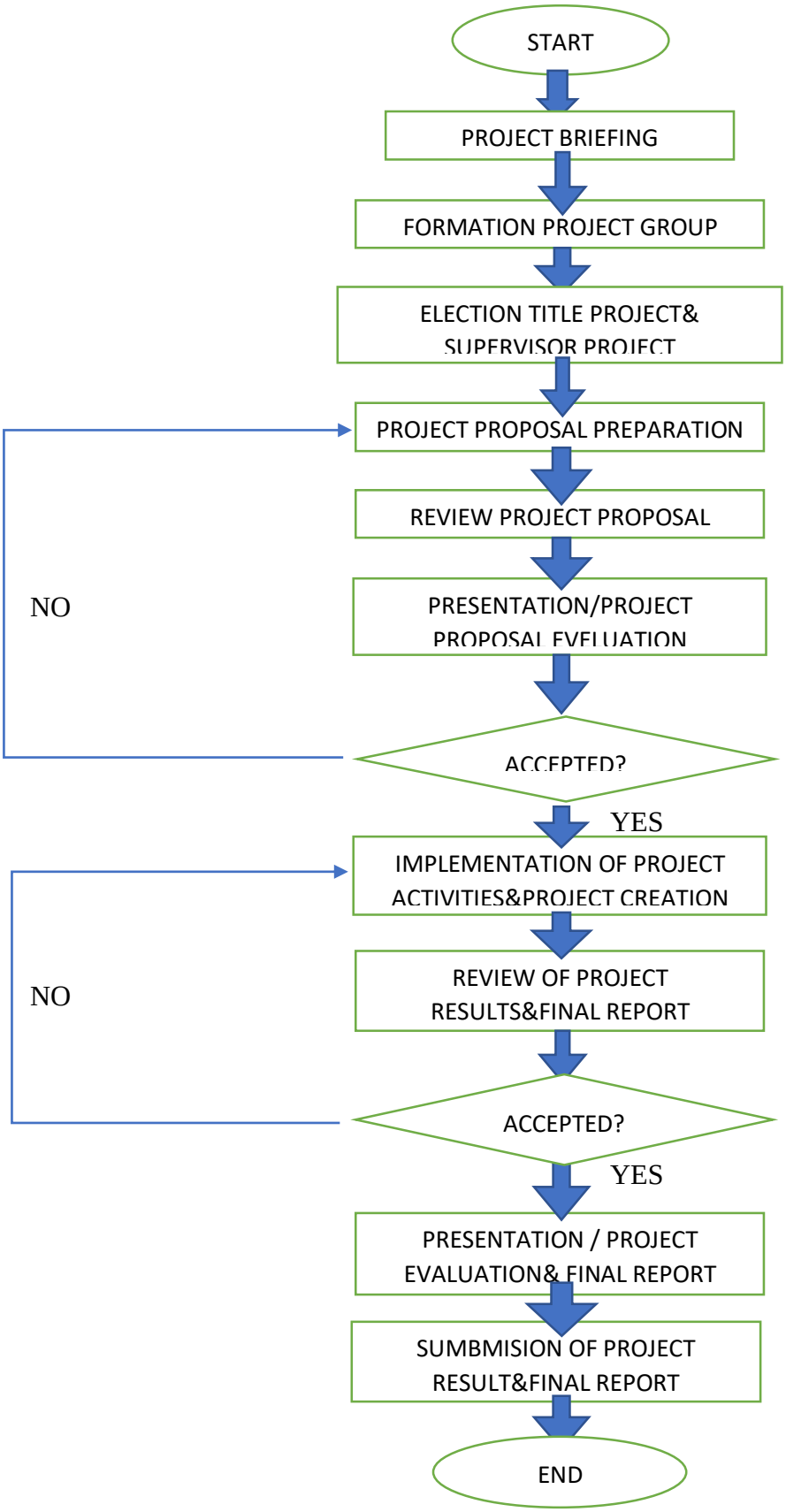
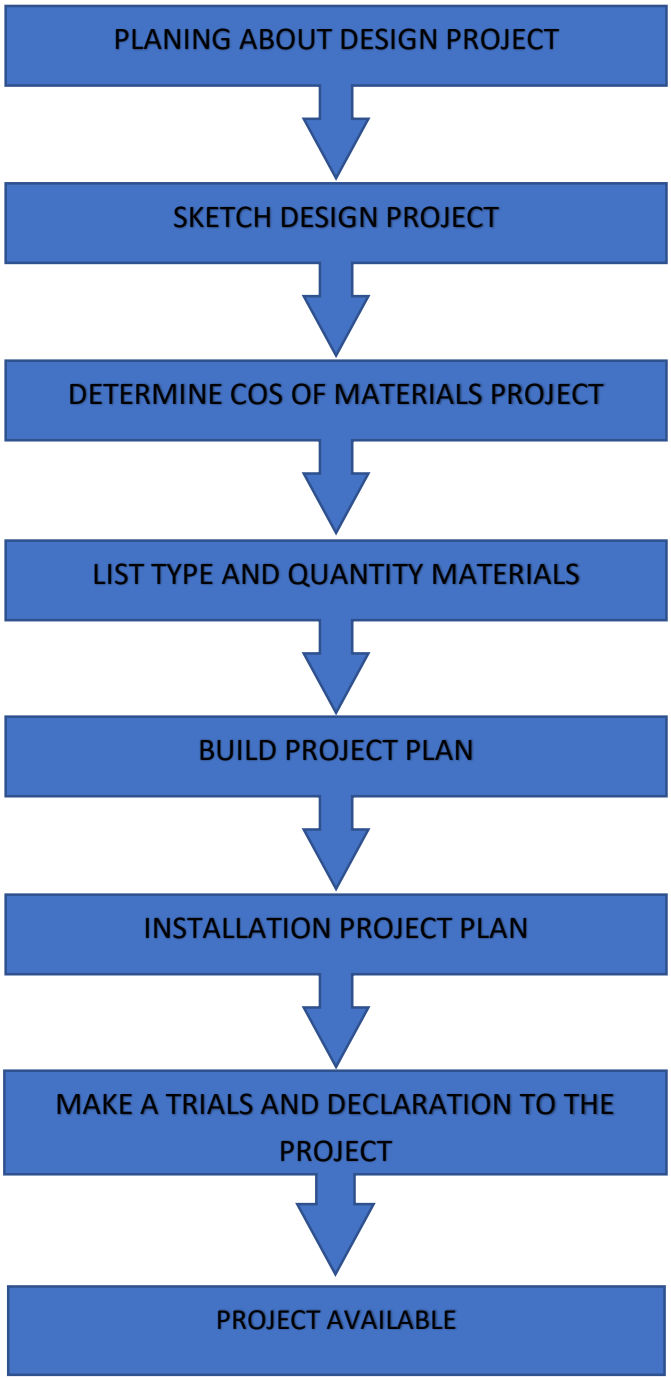


CHART OF IMPLEMENTATION FLOW



3.2.1 PROJECT GRANT CHART

BIL	ACTIVITIES	SEMESTER 4			S	E	M	E	S	T	E	R		5			
			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1	Project title selection																
2	Came up with a proposal																
3	Provide the material																
4	Producing the main parts of the project																
5	Installation process																
6	Testing process																
7	Make a mess																
8	Presentation																
9	Generate report																

GRANT CHART SEMESTER 5

DJJ6143 PROJECT 2 PLANNING (SESSION – JUNE 2020)

	Topic	Week														
		LW 1	LW 2	LW 3	LW 4	LW 5	LW 6	LW 7	LW 8	LW 9	LW 10	LW 11	LW 12	LW 13	LW 14	LW 15
		10-14 Aug	17-21 Aug	24-28 Aug	31 Aug-14 Sept	7-11 Sept	14-18 Sept	21-25 Sept	28 Sept- 2 Oct	5-9 Oct	12-16 Oct	19-23 Oct	26-30 Oct	2-6 Nov	9-13 Nov	16-20 Nov
1	Project Brainstroming															
2	Project Fabrication & Assembly															
3	Project Progress Presentation															
4	Complete Project and Testing															
5	Complete Draft Report															
6	Final Project Presentation															
7	Final Report Submission															

3.3 RESEARCH DESIGN

Design is important in our life because it affects everything we do. Every design that has been created should be a way to solve every problem that starts from people surrounding. If the design is good and it can be used, it is very useful for people to keep it and make sure their stuff is safe.

3.3.1 MAIN FUNCTION

Safety laptop can avoid a thief stealing our laptop wherever we are. The laptop has a buzzer and sim that will activate the GPS so we can trace the back and our laptop. We need to send a message to activate the sim or chip so we can trace them easily Meanwhile our bag also has a buzzer and tracker that will make sure the thief will regret what he/she did.

3.3.2 MATERIALS USED

1) **Notebook**

- Notebook that lightweight and easily to put some GPS
- Easily to carry

2) Laptop bag

- Our main function to make sure the laptop is in a very safe place.
- Easy to bring the laptop.

3) Buzzer

- For turning on an alarm
- Make noise

4) Arduino

- For sure to always give us time for trace our laptop

5) Sim Card holder

- For holding our sim
- Give a signal to active the sim and GPS

6) GPS

- Cold start time of 38s Hot start time of 1s
- Rechargeable battery for Backup
- Super Sense Indoor GPS: -162 dBm tracking sensitivity

7) Screw small for electronic

- Used on arduino assembly parts for cover case
- The amount used does not exceed 20 rods

3.3.3 INSTRUMENTS USED

In making this project we already identified how to cut, put the arduino, put a sim card holder and to make sure the laptop/ notebook and bag is safe to put a buzzer on. The materials that we use is down below:

1) Cable Jumper M to F 10WAY 20CM

- We identify why cable jumper are needed. It is because it can hold a GPS in strategic place so it will active in right time.

2) Cable Jumper M to M 10Way 20CM

- It is used for to make sure that the other component will connect and give a great connection to make sure they are active.

3) USB Cable Arduino

- We use cable to connect to the Arduino and to the laptop that we put in the bag.

4) Sim card

- We choose a sim card because it will stay there and we will not lose connection even in far direction.

5) Acrylic Case Transparent Box for Arduino

- Acrylic Case is used to put the arduino for the cover under the laptop to make sure everything will work.

6) Screwdriver

- We used it to install components that use screws.

3.3.4 PROJECT DESIGN CONCEPT

At the beginning one of our group members just gave this idea and she already designed it. We can say that the design was great but needed more improvement and it could be used. Unfortunately, we recreate back our design to make it look professional and will be great when we sell it soon. So, we decided the idea of our concept it's to think about safety for users. We took everything to make sure this design will not be regretted.

ANALYSIS CONCEPT FOR DESIGN

a) Design Drawing

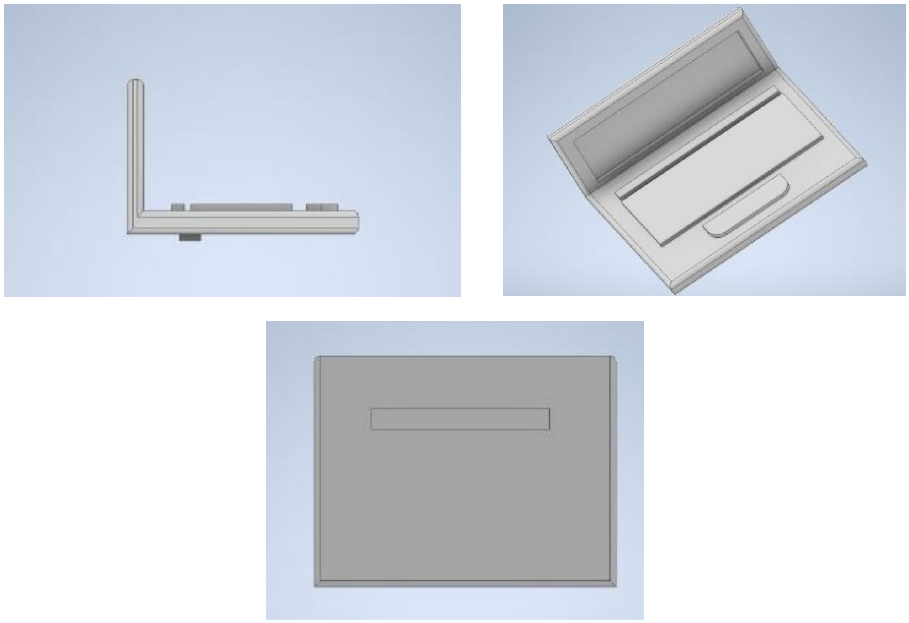


Diagram 1 : 3D Drawing

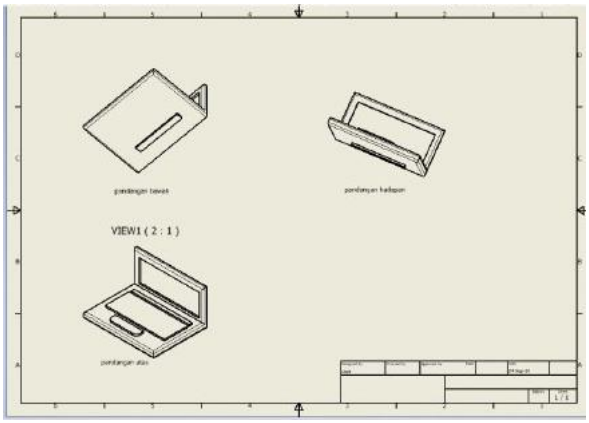


Diagram 2 : Isometric Drawing

- The diagram above shows the first design made in a laptop using Inventor software. This design also shows isometric drawing.

Advantage

- Easily to detect location for your laptop
- It's more safety
- Have alarm to make thief nervous

Disadvantage

- Materials can easily be pull out
- Easily to be open
- Battery power maybe will not stay longer

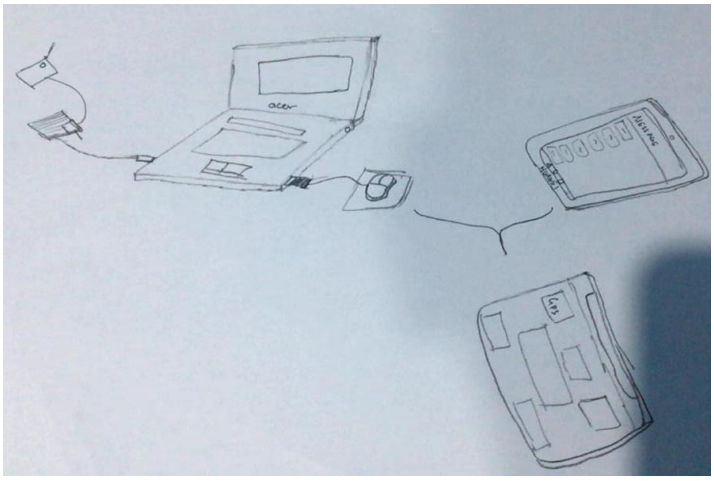
3.3.5 SELECTION OF IDEAS

a) Materials Selection

- The cost of materials used is the most important factor in producing a product or project that has more uses but the cost value is minimal and in line with existing products in the market in order to compete with other products. In addition, the cost of materials required should also be adjusted to the strength and use of the material.

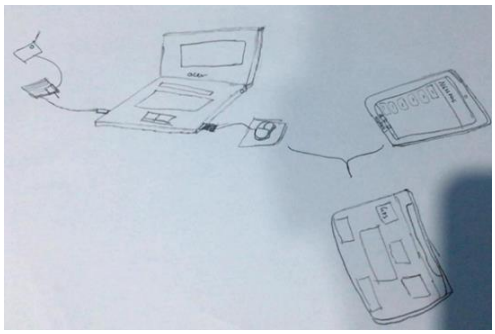
  According to the results we obtained to complete this project cooperation between group members to purchase the necessary materials and can divide the expenses for the purchase of the components.

b) Project form sketch

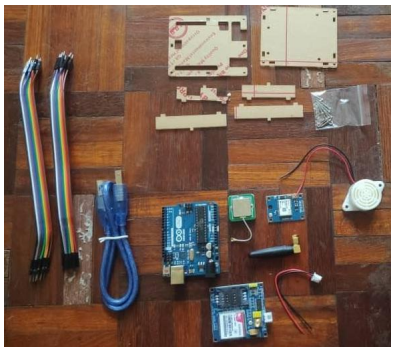


3.3.6 WORK STEPS

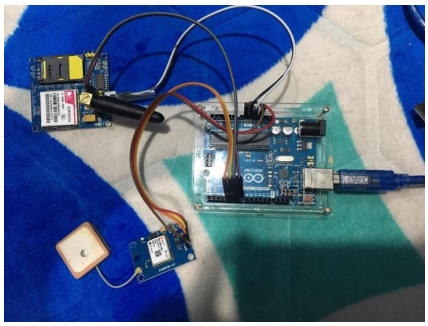
Product Process



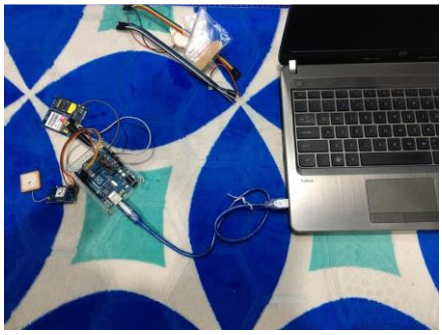
Drawing



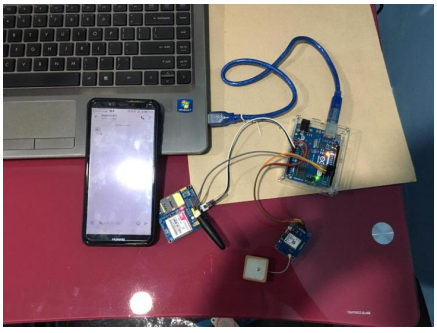
Components



Assembling Components



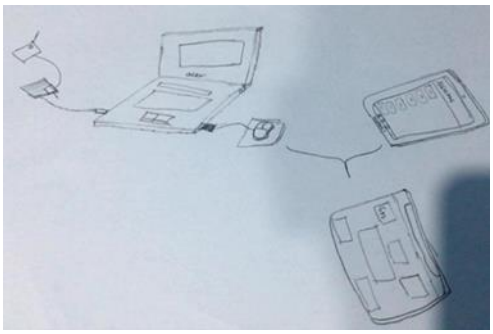
Testing



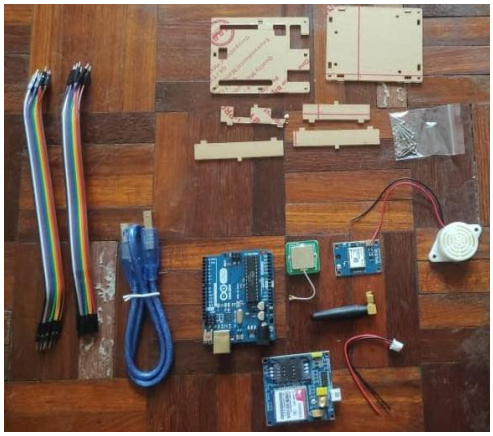
Result

Description Product Proses

1) Starting the project work, first refer to the project form sketch in terms of the components used and installation to the laptop. This project needs to be generated with programming.

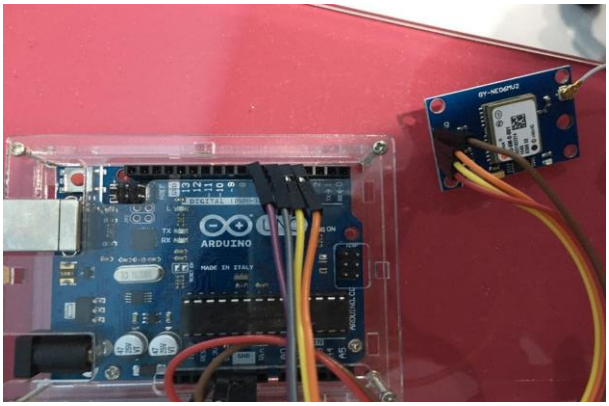


2) Second provide the components , this is components electronic we used.

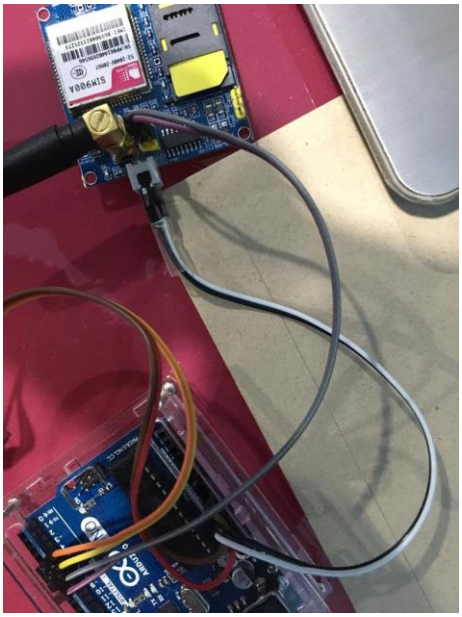


3) Arduino, the main part that connects everything to the sender of information. At first it needs to be coded first to go to the next process.

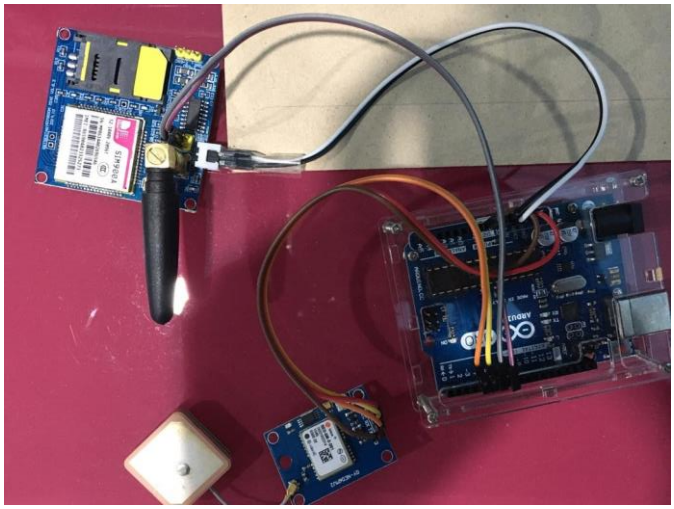
4) Then it is connected to the part, gps. In this section the coding that was done at the beginning of the process has been included in the arduino. It should be ensured that the sensor on the gps runs smoothly. On the Gps part it is very sensitive if there are obstacles that cause this Gps does not detect the area accurately.



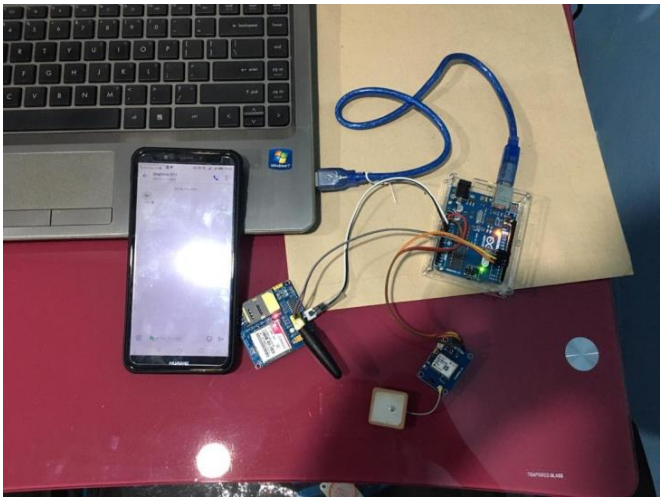
5) Next process, enter the coding into the simcard section. This is to ensure that the simcard can send the required data to the number that has been used.



6) Finally, this installation method to make all the parts connected to make the gps system run smoothly. In addition to being able to detect, it can also send in areas that have a signal.



7) Result is connect with laptop and code in sms of the phone.



3.4 RESEARCH INSTRUMENTS

In this study instrument, a questionnaire method was selected. The selection of respondents consists of road users. The questionnaire used consisted of a 2 scale likert type format (yes or no). The questionnaire form that will be provided is divided into two (2) main sections, that is:

- Section A : Demographics of Respondents (Gender)
- Section B : i) General view of the study
  ii) Respondents' perspective on "Laptop Safety"

3.5 SAMPLING TECHNIQUE

After data collection through questionnaires and sampling is done, data analysis is made using google form. The google form will analyse the questionnaires with link from online which contains 10 questions related to the study. Data analysis can be divided into two parts, namely the formation of analytical model and quantitative analysis.

ANALYSIS MODEL

In performing this analysis model, a mathematical model is used. It aims to further facilitate data analysts. The mathematical model used refers to the predictive model. Given the effectiveness and suitability of the model, regression techniques are used. It can control the dependency variable with other dependency variables that are also tested in the analysts.

The findings of this study, will be presented using pie charts, graphs bar and tables. The selection of the method is done because the evaluation is easy to do and the results obtained are easy to understand.

QUANTITATIVE ANALYSIS

By quantitative analysis, the data collected must have a uniform distribution. It aims so that there are no extreme values that will cause inclination and inaccuracies in the analysis. To carry out this analysis google form is used.

3.5.1 ANALYSIS CONCEPT FOR DATA

In the process of analysing this, the data that has been collected will be analysed and the results to be achieved are displayed in the form of pie charts, graphs bar and tables.

3.6 SUMMARY

As a conclusion from our project, we can say that all the way and how we identified the problem is good for us to make it happen. It happens because all the students and workers that used laptops are easily being a target. We as a group that make this thing will make sure that we know how to keep improving our technology. Other than that, we can say that we also know the components that we use and we will be sure that all the components we choose are from research and study to get a good final form. We as a group make this thing happen, we hope that it will work and it can be improved day by day so it will be great for people to use it.

CHAPTER 4 : FINDINGS RESULTS

4.1 INTRODUCTION

The introduction of this chapter aims to bring the reader's thoughts towards the description of the study findings based on the objectives and questions of the study. This chapter will describe in general about the study to be conducted. Things that can be described in this section are such as response rate, demographic profile of respondents, variables, parameters and findings of the study.

In this study instrument, a questionnaire method was selected. The selection of respondents consists of road users. The questionnaire used consisted of a 2 scale likert type format (yes or no). The questionnaire form that will be provided is divided into two (2) main sections, that is:

- Section A : Demographics of Respondents (Gender)
- Section B : i) General view of the study
  ii) Respondents' perspective on "Laptop Safety"

4.2 DEMOGRAPHIC PROFILE OF RESPONDENTS

Gender

		Frequency	Percent (%)	Valid Percent	Cumulative Percent
Valid	Men	22	56.0	56.0	56.0
	Women	28	44.0	44.0	44.0
	Total	50	100.0	100.0	100.0

Diagram 4.2 : Gender Statistics Of Respondents

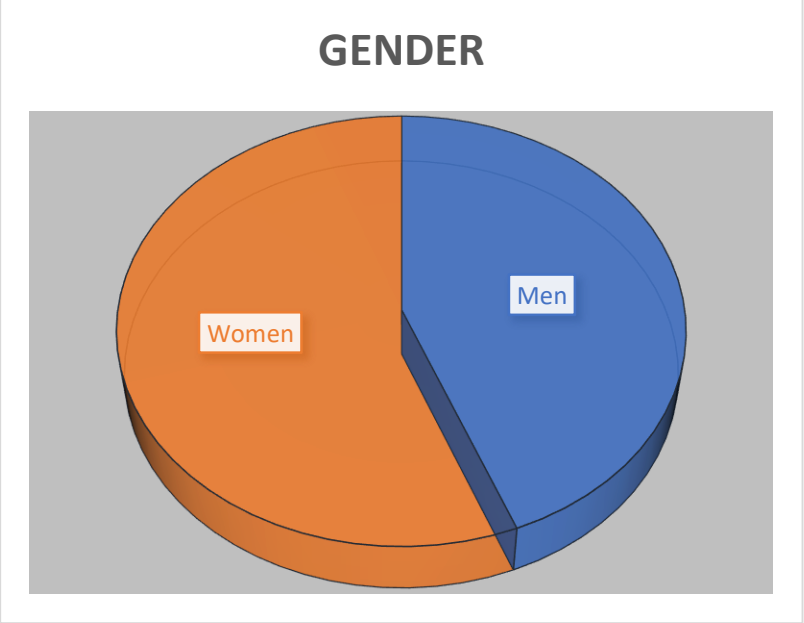


Diagram 4.2.1 Pie Chart Gender Respondent

The diagram above shows the number of Laptop Users who responded to the study conducted. A total of 44% of respondents are 22 men while 44% of respondents are 28 are women. The number of male and female respondents is approximately the same number because they both use laptops due to daily routines such as using when working, doing assignment for students and others. Most female users are more active in using the laptop.

4.3 COMPONENT COSTS

No	Material	Quantity	Price of Each Material	Total price
1	LAPTOP	1 Set	RM 500.00	RM 500.00
2	GSM MODEN SIM900A	1 Set	RM 50.00	RM50.00
3	ARDUINO UNO R3	1 Pcs	RM 30.00	RM 30.00
4	GPS MODULE NEO 6M	1 Pcs	RM 28.00	RM 28.00
5	BUZZER DC3-24V	1 Pcs	RM 3.00	RM 3.00
6	JUMPER MF 10WAY 20CM	1 Pcs	RM 2.00	RM 2.00
7	JUMPER MM 10WAY 20CM	1 Pcs	RM 2.00	RM 2.00
			TOTAL : RM 615.00	

Table 4.2.2 : List Component Costs

4.4 FINDINGS RESEARCH

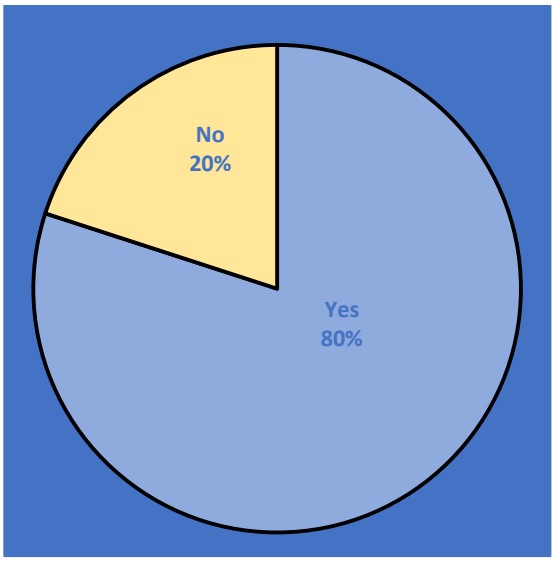
4.4.1 Questionnaire Study

To further strengthen this study conducted. The questionnaire method is done by involving users who use laptops. The data obtained will be used in the form of bar graphs to facilitate the information to be studied and analyzed. The following is information related to the questionnaire that has been conducted.

a) General view of the study

Have you ever experienced the loss or theft of a laptop?

		Frequency	Percent (%)	Valid Percent	Cumulative Percent
Valid	Yes	40	80.0	80.0	80.0
	No	10	20.0	20.0	20.0
	Total	50	100.0	100.0	100.0

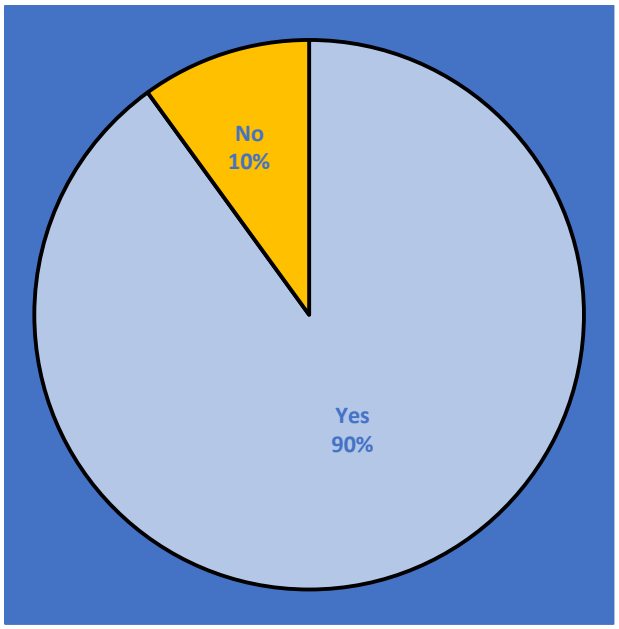


The diagram above shows the analysis of activities that respondents have experienced the loss or theft of a laptop. From the analysis, as many as 80% (40 people) respondents have experienced the loss or theft of a laptop. While as many as 20% (10 people) among the respondents did not or less suffered loss or theft of laptop. Due to less loss or theft, it is less likely to use laptops in public places.

b) Respondents' Perspectives on "Laptop Safety"

i) Do you think this project can reduce the loss or theft of a laptop?

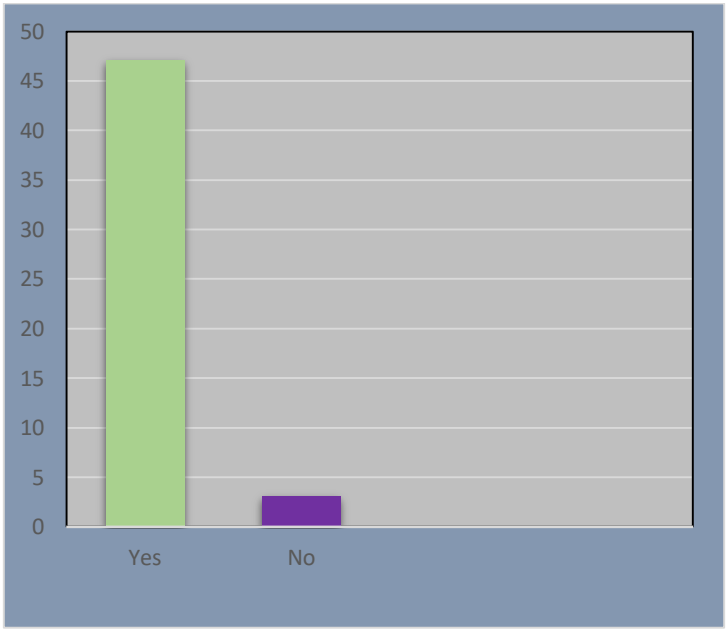
		Frequency	Percent (%)	Valid Percent	Cumulative Percent
Valid	Yes	45	90.0	90.0	90.0
	No	5	10.0	10.0	10.0
	Total	50	100.0	100.0	100.0



In the diagram above, some of the respondents, namely 90% (45 people) agree that this project can reduce loss or theft. While 10% (5 people) respondents are not sure that this project can reduce the loss or theft.

ii) Is there a sense that the advantages of this project can change the attitude of laptop users from their carelessness?

		Frequency	Percent (%)	Valid Percent	Cumulative Percent
Valid	Yes	47	94.0	94.0	94.0
	No	3	6.0	6.0	6.0
	Total	50	100.0	100.0	100.0



Based on the analysis in the diagram above, the highest option is to agree that this project can change the attitude of carelessness for laptop users which is 94% (47 people). In addition, 6% (3 people) among the respondents are not sure the advantages of this project can change the attitude of laptop users with their carelessness or vice versa. The results of this questionnaire show that some students who do not agree with this advantage can change the attitude of laptop users.

CHAPTER 5 : DISCUSSIONS AND CONCLUSIONS

5.1 INTRODUCTION

For this chapter, the decision made is based on all the results obtained from the experiments conducted and the discussion in the previous chapters. In this chapter as well, the relevant matters are regarding the objectives of the study and also the recommendations on the study conducted. In addition, conclusions have also been drawn for this experiment.

5.2 DISCUSSIONS

Project Height Determination

We have done some research before creating this project. The most important aspect of this project is the height of the project because the height of the project plays an important role so that the loss or theft of this laptop is no longer an issue in society.

Project Maintenance

After reviewing the project height, we turned to project maintenance. Most of the loss of laptops is the focus of the public due to the very valuable items, but we have added and modified laptops by using programming and GPS to track the laptops. In addition, we have also used a sim card to receive a code that will be able to know the location where the laptop is located. This allows the security of the laptop to be removed.

5.2.1 Project Problems

In the process of completing our project, we have encountered some problems and we have solved problems on our project. Among the problems are:

a) Installation

We have installed those components to make one circuit. The cause of this installation we mistakenly installed components on the circuit.

The solution:
The installation is assisted by the supervisor so that the project is balanced with the components that have been set.

b) Location

We have tracked the location using GPS but the location provided is not the same as the laptop is.

The solution :
We have changed the decimal point part of the coding code based on google map from 2 to 6 decimal points to get the exact location where the laptop is.

c) GPS

We have used the Neo GPS module (6M) but could not detect it properly because it is only able to detect when on the sidewalk.

The solution:
We have used larger and longer GPS modules. Therefore, laptops can be detected so quickly and easily.

5.3 PROPOSAL

i. Introduce this product worldwide because it can help reduce the loss statistics of laptops in a country.
ii. Improve a more effective security system and do not facilitate the loss of a laptop.
iii. Produce products at low cost.

5.4 CONCLUSION

With GPS on the laptop. The probability of the problem of loss or theft of the laptop decreases. This is because, we will be able to detect if the laptop is lost by using the coordinates we obtained via sms faster and easier to make the process of retrieving the laptop.

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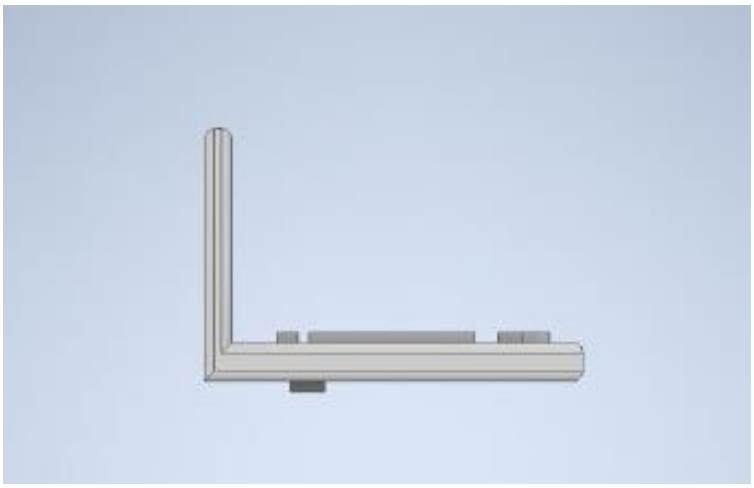
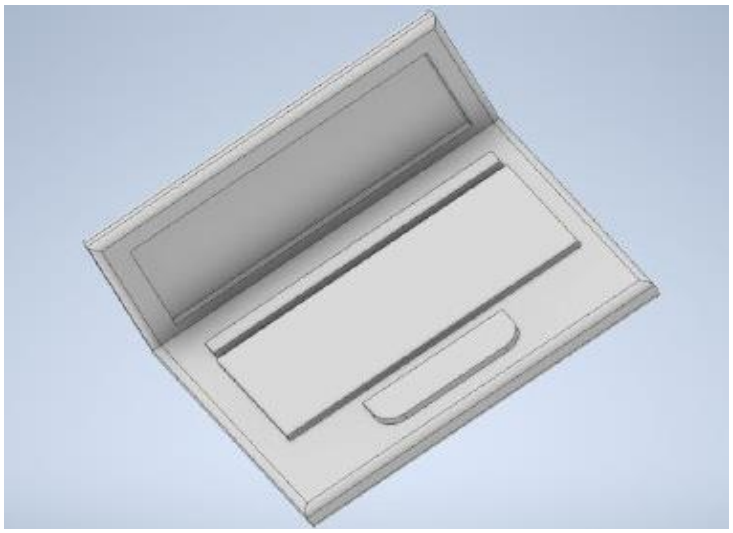
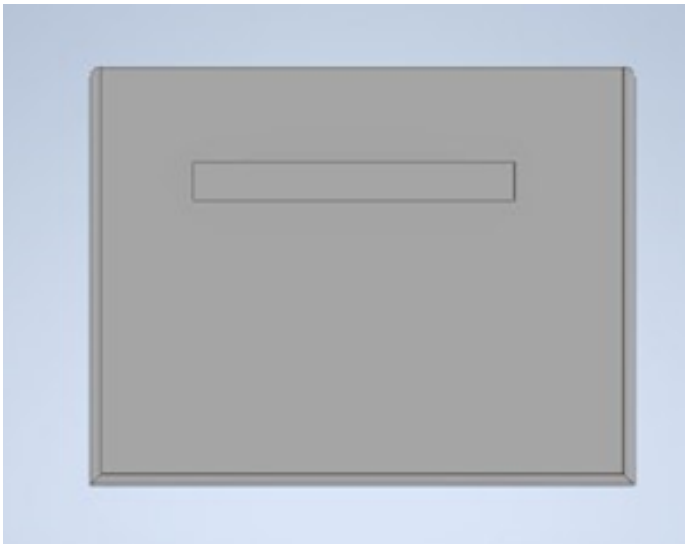
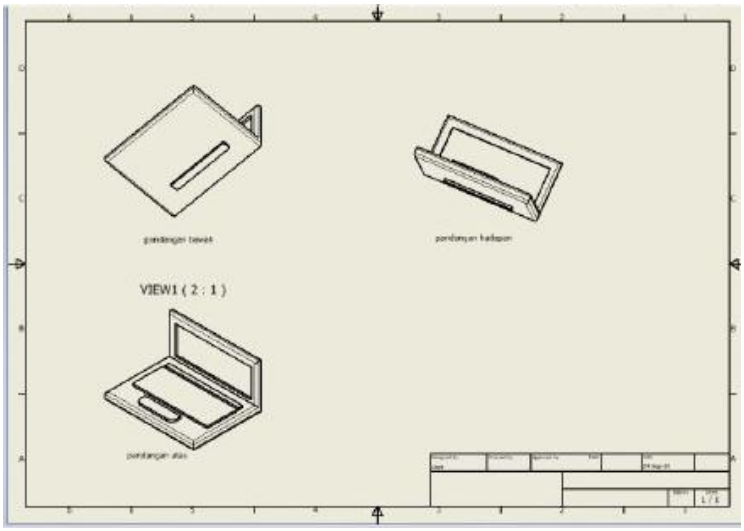
ATTACHMENT





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