



FINAL REPORT

**TITLE:
“SMART MOUSE TRAP
(SMouT)”**

**BY:
AMAL AMANI BINTI
MOHAMED ZAIDI
(08DEP19F1199)**

**PROJECT SUPERVISORS:
PN. NORAZLINA BINTI JAAFAR**


DECLARATION

I hereby declare the final year project book is authentic record on my own work carried out for one-year final year project for the award of the Diploma of Electronic Engineering Communication with honours, under the guidance of PN NORAZLINA BINTIJAAFAR from the week 1 until week 15.

SIGNATURE : *Amal Amani*
NAME : AMAL AMANI BINTI MOHAMED
ZAIDI REGISTRATION NO : 08DEP19F1199
DATE : 15 December 2022

ENDORSEMENT

I hereby acknowledge that I have read this report and I find that its contents meet the requirements in terms of scope and quality for the award of the Diploma in Electronic Engineering (Communication).

SIGNATURE : 
NAME : PN NORAZLINA BINTI JAAFAR
POSITION : PROJECT SUPERVISOR
DATE : 25 December 2022

ACKNOWLEDGMENT

In this section, I would like to express my sincere gratitude to several individuals and organizations for supporting me throughout my Final Year Project 1. With respect appreciation to everyone who have contributed their efforts and times in helping me to complete this project.

Firstly, I dedicated this report to the Almighty God, Allah, thank you for the guidance, strength, power of the mind, protection and skills and for giving us a healthy life.

Next, I wish to express my sincere gratitude to my supervisor and also electrical engineering head department, Pn Norazlina Binti Jaafar for her enthusiasm, patience, insightful comments, helpful information, practical advice and unceasing ideas that have helped me tremendously at all times in my research and writing of this Final Year Project 1. Her immense knowledge and without her support and guidance, this project would not have been possible. I could not have imagined having a better supervisor in my study.

I also wish to express my sincere thanks to the Politeknik Sultan Salahuddin Abdul Aziz Shah giving me this opportunity to conduct this research and conclude my Diploma studies. I had finally learned a lot about how to conduct research and analyse data that would be beneficial for our future projects. It's significant since I learned a lot that will help and benefit me in the future.

Additionally, I want to thank the supervisors which provided feedback in order for my project to attain the objective. They also benefited me a lot for my project, notably by providing me ideas to inspire it. They also encouraged and stimulated my thinking. Since working in this profession demands high efficiency and competence to facilitate the work process, they also operate as a panel that has provided a lot of advice and criticism in every job they do.

Last but not least, gratitude and appreciation are also extended to all of the family members and friends who were directly or indirectly involved in this study. They were essential to the completion of this final year project 1. Thanks for all your encouragement!

ABSTRACT

Rats are pests that can pose variety of threats to humans. Control of the rat population should be done intensively because the uncontrolled number of rats will affect the economy where the habit of rats that like to bite will damage infrastructure such as electrical cables, electronic equipment and others. In addition, uncontrolled rat populations also affect public health. Mice can cause direct and indirect infections of infectious diseases. With that came the upgraded rat trap project, where the rat trap project is equipped with sensor control. Such as PIR sensor or Passive Infrared Sensor works to detect changes in infrared waves (heat) in pests. The trap also uses the esp8266 as a microcontroller that comes with software to run the program. The uniqueness of this trap, the user will receive a notification via apps that the trap has hit the target. Therefore, the ESP8266 is equipped with a wifi module in it. The trap also has a spray device that is placed chemicals that can eliminate rodents. The way to use this trap is that a bait like bread will be installed in the trap. The use of this bait is to attract rats to get into the trap. Traps will be placed in places that are always targeted by rats such as kitchens, residential areas, industrial places and many more. When the bait were triggered, the trap door will automatically close. The trap will produces a sound and the user will receive a notification via apps. The user will be provided with an application that can be downloaded on playstore or googlestore. With this application, the user can manually control the sound of the buzzer when the trap detect a rats. When the door were close a chemical will be spray to eliminate the rats. The carcasses can be dispose and the Smart Mouse Trap (SMouT) device can be sanitize. The other advantages that this Smart Mouse Trap (SMouT) holds are the abilities of it to entrapped not 1 but up to 3 mice per cage enclosure. This give great point of view towards the Smart MouseTrap (SMouT) user.

CHAPTER 1: INTRODUCTION

1.1 INTRODUCTION

The project was triggered based on the problem of the growing population of pests such as rodents in the industrial, residential and restaurant. The idea in designing this trap was taken from the existing rat trap and slightly changed the design in accordance with its advantages which was innovated into a more modern rat trap. With the new version of the rat trap can make it easier for those who have problems in eliminating the pests.

My purpose in producing these rat traps is because of the current rat trap hygiene factors that do not guarantee cleanliness as well as the troublesome rat removal methods that are sometimes unsuccessful in catching rats. From there came my idea in making a more modern rat trap that has heat detectors, motion, buzzer and chemicals to eliminate rats by using a sprayer or rodenticide spray.

1.2 PROJECT BACKGROUND

Time affects all living things on Earth thus contributing towards the expansion of life. With proper guidance, living things strive towards success including humans. With each stride towards future, problems arise among living things such as parasites. Parasites in the human world can be anything that destroys the system and its environment thus the main problem arises towards humans are rats. Rats pose huge impacts towards human health and it contributed disaster towards ecological system. Leptospirosis gave such huge impacts towards human recreational area and it involves in shutting down the area when the virus are detected by the Health Organization. Rats inhabiting the restaurant and residential area, pose hazards towards human living in the spaces. These rats population will destroy stored food supplies once they made contact with it thus leaving unwanted virus and bacteria.

Overcoming this problems, rat traps were produced with simple mechanism to entrap the rats thus controlling the population. Bear in mind that not all rat traps were made are successful due to its material such as steel. This material will start corroded once it exposed towards water. As we all know, water are everywhere and even it is in the air. This metal will start to oxidize and its enclosure integrity will start to fail. With that Smart Mouse Traps comes into play. Rat traps need to keep pace with the passage of time which is now more advanced. Where there is a sensor that detect the presence of rats by heat. Trap materials need to be upgraded using more durable, rust-resistant, and odor-proof materials.

1.3 PROBLEM STATEMENT

The problem of overcoming pests such as rats is a difficult problem due to the increasing population of rodents day by day. Not only that, rodents are dangerous pests that can cause various diseases to the point of death. Among the pest-borne diseases such as, Leptospirosis disease caused by *Leptospira icterohaemorrhagiae* bacteria found in rat kidneys and excreted through rat urine, Lymphocytic Choriomeningitis is a disease caused by Lymphocytic Choriomeningitis Virus (LCMV).

According to the thesis study of Universiti Sains Malaysia students entitled STUDY OF AGE, REPRODUCTION, GROWTH, AND SIZE OF RAYAU AREA OF MONDOK

RAT (*Rattus norvegicus*) AROUND PENANG. In the wild habitat, rats will die at the age of 2 to 3 years. However, it can reproduce after 3 months of birth and can give birth to 12 mice 6 times a year. This means that on an estimated basis in a month it can have 2000 offspring. In other words, over the course of three years of its life, 6000 young mice can be born from a pair of breeding mice.

In addition, the rat traps available in the market are more vulnerable and also unsafe to use by consumers because the traps available in the market are not guaranteed cleanliness such as littered bait waste and even smelly rat carcasses. As for the rat sticker board, over time the glue on the board will lose the strength of the glue which causes pests such as rats to escape.

The mouse traps that are in the market are now can be use to trap only a mouse at a time, with the improvised SMART mouse trap it can now entrapped more than a mouse but not more than 3 to preserve the hygiene. The problem of uncontrollable rat odor is also one of the main problems that are a concern for residents and workers. Most of the traps sold cannot handle this problem. So the use of trap materials should be upgraded to materials that do not rust easily, are durable and also do not smell.

1.1 PROJECT OBJECTIVE

- To build an automatic mouse trap that use motion sensor to detect movement and also to eliminate mouse by using chemical.
- To develop a notification system that enabled to send signals to buzzer that can alert the user through an apps.

1.2 PROJECT SCOPE

There are concerns about the scope of work during this project, so it must be done properly. Among them is that this trap is specially designed for use by those who have problems in dealing with pest issues such as rats. This trap cannot be used for other pests because of its special design and creation for pests such as mice. If used to catch other pests, this trap will not be fully functional.

As we all know, the rat population is increasing, causing concern and also causing various problems especially for housewives, restaurant owners, as well as those who work in industries such as factory workers. So this trap is suitable for use in residential areas, restaurants and even industrial areas. This is because pests like mice like to be in dirty areas.

Although many types of mouse traps have been designed and sold in the market, there are still some shortcomings that need to be improved. For example, mouse traps that use glue are found to be less effective in trapping mice because the glue over time is not strong enough to cause mice to escape easily. For users who use rat poison will experience difficulties because rats die everywhere. It is difficult to clean if the carcass is in a hard-to-reach place. With the presence of this trap can eliminate rats by using chemicals and this trap has a PIR motion sensor that can detect the presence of rats. This trap will make it easier for the user, because the user will get a notification via telegram if the mouse has hit the trap. This trap is also more guaranteed to be clean. It should also be noted that these modern traps are specially built for mice only.

1.1 PROJECT SIGNIFICANCE

First of all, this rat trap can catch more than 1 rat at the same time. Not only that, this trap has a sensor that can detect the heat of the rat. When a mouse is trap this sensor will send a signal to the user using a specially designed IOT app. In addition, this trap has a chemical spray that can eliminate rodents and also this trap will trap odors. This trap will also make it easier for users to deal with rat problems. These traps are easy to wash and sanitize. When the mouse has hit the target the buzzer will sound and the user only needs to control it through an apps.

CHAPTER 2: LITERATURE **REVIEW**

The term “literature” means a research article that is referred to understand and study the research problem. The literature review is used to provide the context of the study by looking at the research that has been conducted in the field of research and not just summarizing the research conducted by other researchers. The contents of this chapter may contain a brief introduction to the subject of the study, concept or theory, previous studies related to the field of study and summary of this chapter.

2.1 PREVIOUS RESEARCH

The project that I have used as a reference is The Application of the Infra-Red Sensors in a Mouse Trap Design by Siti Nur Laila Binti Mukhtar (2004)¹. The objective for this project are to understand the working principle of Infrared sensor and its application. This project needs three pairs of infrared sensor in order to run the motor at three different speeds. The infrared circuit was constructed to be a movement detector of the mouse. They will be activated only when the limit switch is triggered. Generally, there are three pairs of infrared sensor that need to run the conveyor motor at difference speed. When the mouse moves to get out from the cage, it will block the first infrared sensor. Due to infrared receiver does not receive the signal from the infrared transmitter, it will trigger a signal to the motor to be run at the first speed as starting motor motion. The conveyor will operate and that prevent the mouse from escaping.

Next, the Smart Mouse Trap project from Sultan Haji Ahmad Shah Polytechnic students. This project aims to develop a rat trap that uses ultrasonic sensors. Several types of materials have been identified to build such automatic rat traps. Among them are hollow iron frames, iron nets, plastic containers, motion sensors and others. All these materials are selected based on specific characteristics that can meet the desired design requirements.

2.2 CONCLUSION

In conclusion, based on the studies that have been done is to identify the suitable material to be used as well as the sensors that can detect the heat well for this trap. Trap design also played an important role in implementing this final project.

As a result, PIR were chosen for detection of the rats. It is because PIR sensors allow to sense motion, almost always used to detect whether a human or animal has moved in or out of the sensors range. They are small, inexpensive, low-power, easy to use and don't wear out. For that reason they are commonly found in appliances and gadgets used in homes or businesses. They are often referred to as PIR, "Passive Infrared", "Pyroelectric", or "IR motion" sensors.

CHAPTER 3: METHODOLOGY

3.1 INTRODUCTION

Designing, gathering, and evaluating data in order to provide evidence that can support a research is known as methodology. Methodology explains the best way to approach a problem for study. By outlining the research process, the methodology seeks to improve your application of the approach.

Methodologies can also be used as a guide to help a group carried out a project that they have in mind. A methodology is also needed to keep everyone updated on the project's progress. With the methodology, project implementation will be more coordinated and can be finished quickly. The supervisor will also be informed of the work the students did to complete the project.

The utilisation of the materials to carry out the project is described in greater detail in this technique. The operating procedures for the task and the techniques used to complete the project are also mentioned. Every project that is implemented or an existing project that is being enhanced in the market demands to follow this methodology.

3.2 PROJECT DESIGN AND OVERVIEW

3.2.1 BLOCK DIAGRAM OF THE PROJECT

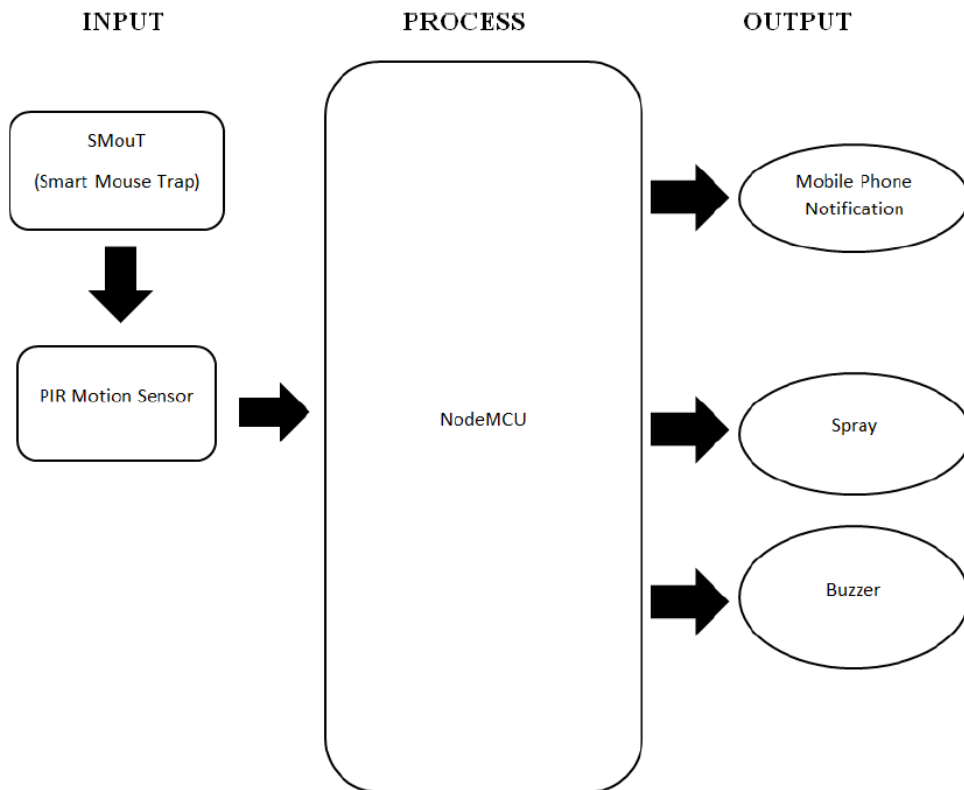


Figure 3.1: block diagram

3.2.2 FLOWCHART OF THE PROJECT

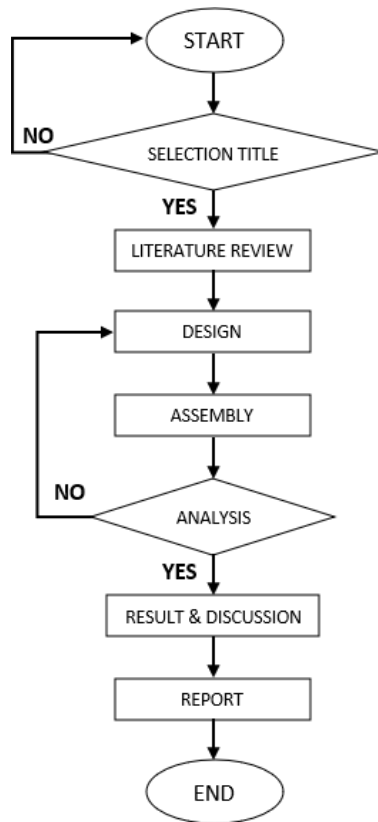


Figure 3.2: flowchart of the project

3.2.1 PROJECT DESCRIPTION

This Smart Mouse Trap is specially designed to overcome the problem of rats that can no longer be curbed. This Smart Mouse Trap can facilitate the affairs of residents and employees who are facing the problem of many rats in homes, industrial areas and restaurants. These rat traps have sensors that can detect the presence of rats and can also eliminate rats using a chemical sprayer. In addition, this trap can trap more than one rat and in order to maintain the cleanliness of this trap maximizes the number of rats that can fit in the trap as much as 3 at the same time. Not only that, this trap can control and trap the smell of foul rats.

Once the rat has entered the trap, the PIR sensor will detect the rat and send a signal to the ESP8266. After that microcontroller (ESP8266) will send a signal to the user using a notification from the IOT application, as well as buzzer will also sound. Then, the chemical spray will spray the chemical liquid. From the application the user will be able to know the presence of mice and control the buzzer that sounds.

3.3 PROJECT HARDWARE

3.3.1 SCHEMATIC CIRCUIT

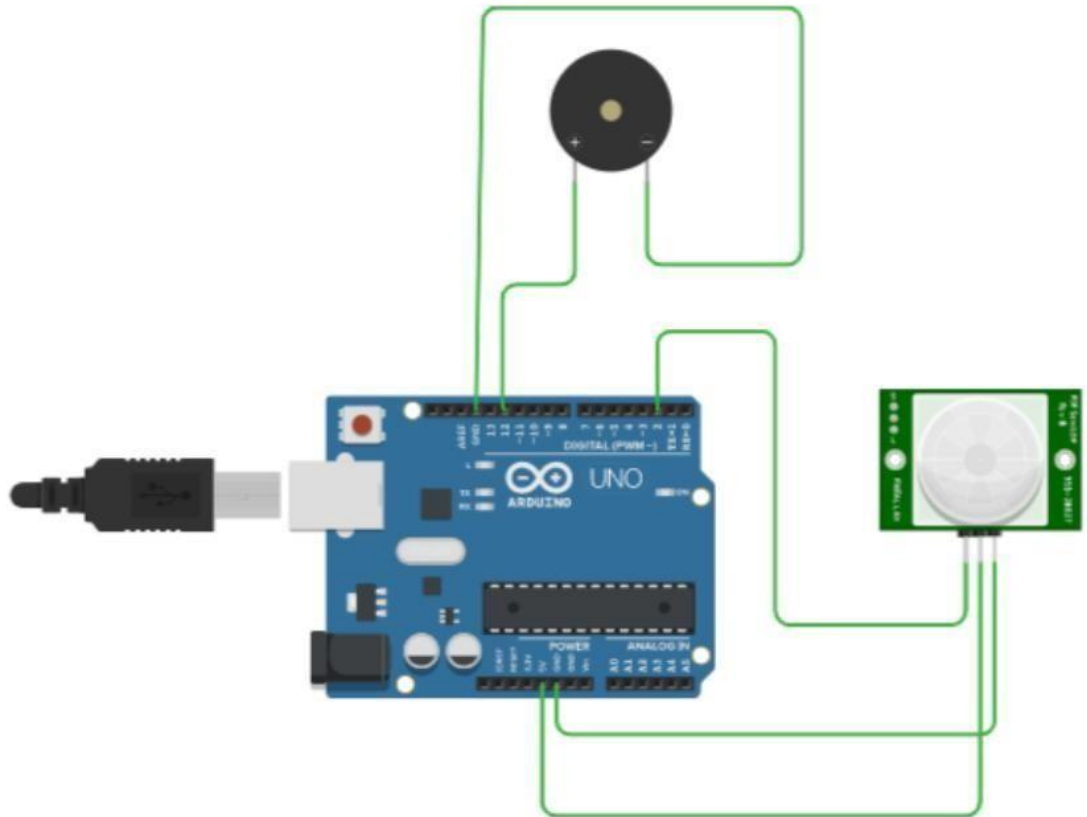


Figure 3.3: schematic diagram on TinkerCad

3.3.2 DESCRIPTION OF MAIN COMPONENT

3.3.2.1 ESP8266

The ESP8266 WiFi Module is a self contained SOC with integrated TCP/IP protocol stack that can give any microcontroller access to your WiFi network. The ESP8266 is capable of either hosting an application or offloading all WiFi networking functions from another application processor. Each ESP8266 module comes pre-programmed with an AT command set firmware, meaning, you can simply hook this up to your Arduino device and get about as much WiFi-ability as a WiFi Shield offers (and that's just out of the box)! The ESP8266 module is an extremely cost effective board with a huge, and ever growing, community.

This module has a powerful enough on-board processing and storage capability that allows it to be integrated with the sensors and other application specific devices through its GPIOs with minimal development up-front and minimal loading during runtime. Its high degree of on-chip integration allows for minimal external circuitry, including the front-end module, is designed to occupy minimal PCB area. The ESP8266 supports APSD for VoIP applications and Bluetooth co-existence interfaces, it contains a self-calibrated RF allowing it to work under all operating conditions, and requires no external RF parts.

There is an almost limitless fountain of information available for the ESP8266, all of which has been provided by amazing community support. In the Documents section below you will find many resources to aid you in using the ESP8266, even instructions on how to transform this module into an IoT (Internet of Things) solution!



Figure 3.5: ESP8266

3.3.2.2 Passive Infrared Sensor (PIR Sensor)

You can detect motion with PIR sensors, which are almost always employed to determine whether an animal or person has moved into or out of the sensor's range. They are lightweight, affordable, low-power, simple to operate, and durable. They are frequently found in devices and appliances used in homes and businesses because of this. They are frequently referred to as PIR, pyroelectric, passive infrared, or IR motion sensors. PIRs are essentially constructed of a pyroelectric sensor, which can detect amounts of infrared radiation. You can see this sensor below as the round metal container with the rectangular crystal in the centre. Every object produces some low-level radiation, and the more radiation is emitted by an object the hotter it is. A motion detector actually has two sides to its sensor. This is because we want to detect motion (change) rather than an average of IR levels. The wiring of the two sections makes them cancel each other out. The output will fluctuate high or low depending on whether one side sees more or less IR radiation than the other. The PIR sensor used is to detect the presence of mice and send a signal to the Microcontroller i.e. ESP8266.



Figure 3.6: PIR Sensor

3.3.2.3 Buzzer

A beeper or buzzer, for example, could be electromechanical, piezoelectric, or mechanical in design. The signal is converted from audio to sound as its primary function. It is often powered by DC voltage and used in timers, alarm clocks, printers, computers, and other electronic devices. It can produce a variety of sounds, including alarm, music, bell, and siren, according on the varied designs. A buzzer is a useful tool for incorporating sound characteristics into our project or system. It is a very compact and sturdy two-pin gadget, making it easy to use on a breadboard or PCB. As a result, this component is frequently employed in most applications. Buzzers come in two different varieties: simple and ready-made. When a simple type is powered up, a continual beeping sound is produced. A pre-made type appears heavier and emits a Beep. Beep. Beep. Its internal oscillating circuit is what causes this noise.



Figure 3.7: Buzzer

3.3.3 CIRCUIT OPERATION

- 1) To power on all connected components, a Micro USB cable is used to link the ESP8266 microcontroller to a DC input power supply in this project I used power bank as power supply.

- 2) Power are supplied. When the rat trap, the PIR sensor will detect the presence of the rat. The signal will be sent to the microcontroller.

- 3) After the data has been processed, the ESP8266 will start to connect to the internet through a WiFi connection to send the information to the buzzer. At the same time ESP8266 will send to chemical spray and the user will get the notification from the IOT application.

- 4) The chemical spray will release the liquid. as long as the heat of the rat and the movement of the rat is still there as long as the chemical spray will spray

- 5) The user will receive a notification notifying the presence of a mouse and also the user will control the buzzer that sounds with the application.

3.4 PROJECT SOFTWARE

With the use of third-party cores, other vendor development boards can also be programmed and uploaded to using the Arduino IDE software. In addition to a text editor for writing code, a message area, a text console, a toolbar with buttons for frequently used operations, and a number of menus, the Arduino Integrated Development Environment, sometimes known as the Arduino Software (IDE), is also available. To upload programmes and communicate with the Arduino and Genuino hardware, a connection is made.



Figure 3.8: Arduino IDE

With the help of the new platform Blynk, it can easily create user interfaces for iOS and Android devices to control and monitor hardware projects. It can design a project dashboard after downloading the Blynk software and placing buttons, sliders, graphs, and other widgets on the screen. It may display sensor data or switch on and off pins using the widgets. Regardless of idea, there are probably hundreds of guides that make the hardware component rather simple, but creating the software interface is still challenging. However, with Blynk, the software aspect is even simpler than the hardware. Blynk is ideal for interacting with straightforward tasks like controlling lights remotely or controlling buzzer from sound.



Figure 3.9: Arduino BLYNK Application

The Tinkercad Simulation, the Tinkercad Simulation is a platform that where help the user to design the circuit easelly and do a simulation also create a coding.

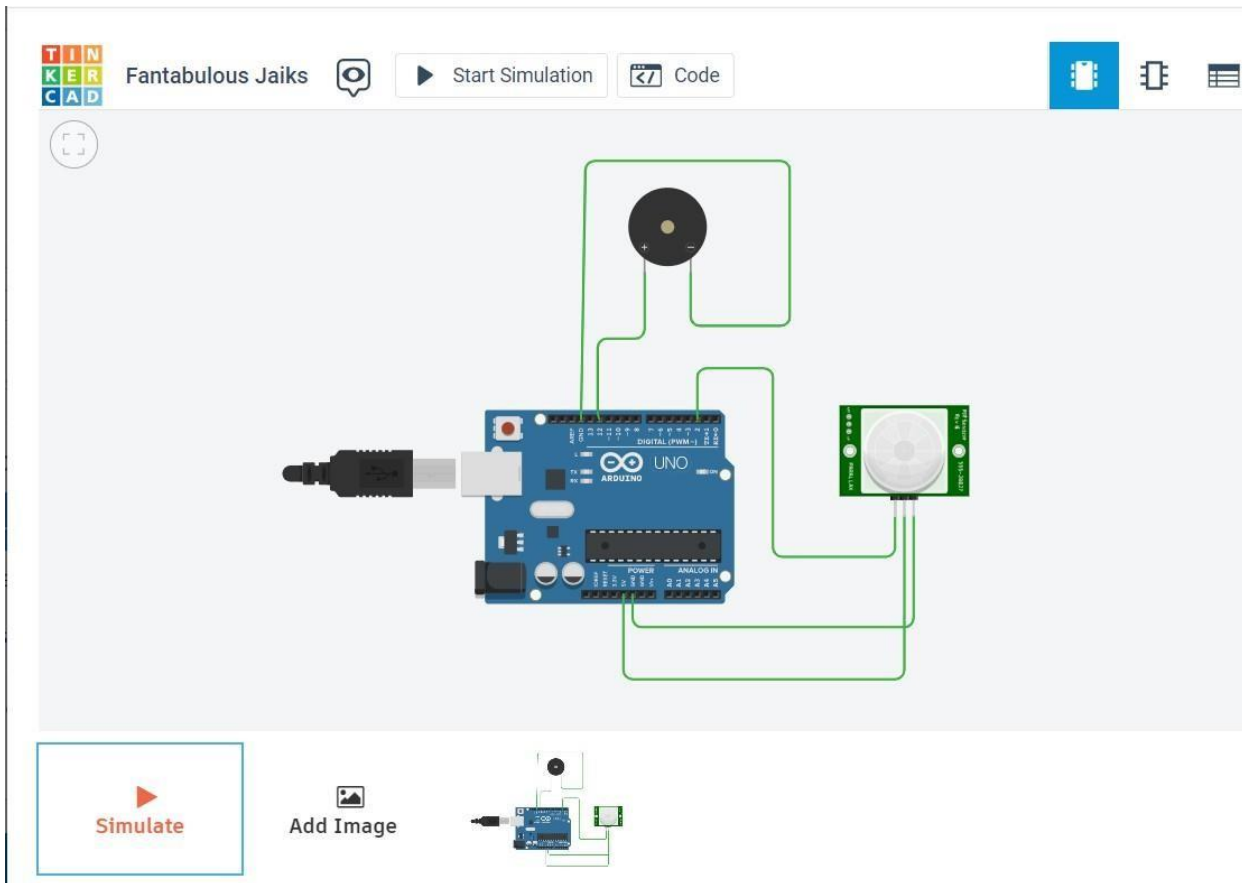


Figure 3.10: TinkerCad

3.4.1 FLOWCHART OF THE SYSTEM

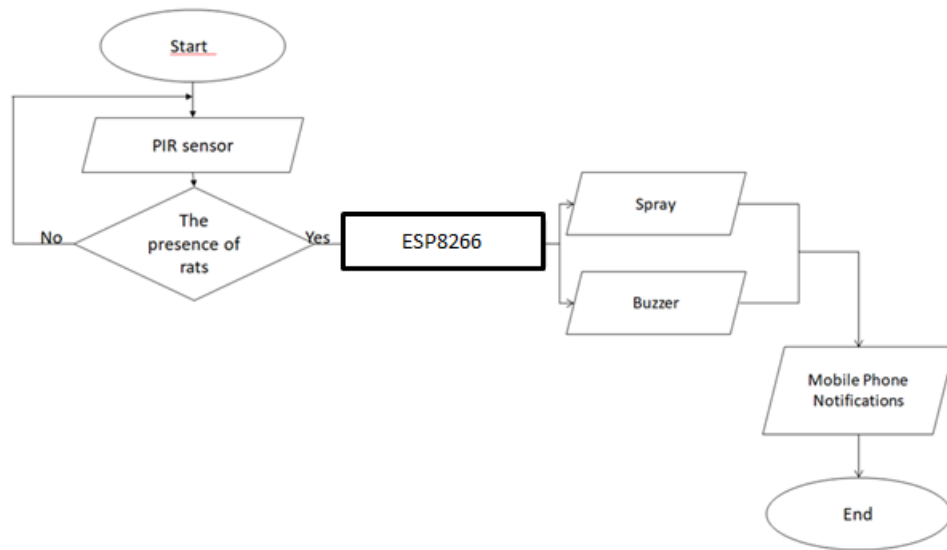


Figure 3.11: Flow Chart of The System

3.4.2 DESCRIPTION OF FLOWCHART

Based on the figure above, the flowchart is shown how the software is working. The system will start if the PIR Sensor detects the presence of the rats trapped, if not it will be going back to the start and start it again. Next, if the PIR sensor detects the presence of the rats trapped it will send the information to the microcontroller which is ESP8266 to process the data that come from the sensor. The ESP8266 will process the data based on the programming that I compile it to the microcontroller. After the data has being processed, the ESP8266 will sent the information to buzzer, chemical spray and also send it via IOT application. The user will control the buzzer from sounding through the built -in app. With the help of the application the user will know the presence of rats. As for the chemical spray, after receiving the data it will spray the chemical liquid based heat and movement of rats.

CHAPTER 4: RESULT AND DISCUSSION

4.1 ANALYSIS OF PROJECT

For this project, using an existing iot application to facilitate this trap to work well. This IOT application is intended for users to be able to detect the presence of mice and control the buzzer using a smartphone. Following the completion of the design and programming for the Smart Mouse Trap All of the project's functions were tested after the design and programming of the Smart Mouse Trap was complete. All components work well. After the coding was entered into the NodeMCu, I made a circuit connection where the buzzer and also the PIR sensor were connected to the NodeMCU. The circuit connection has been successfully produced. After that, I have built a program in the IOT application so that users can receive notifications from the application. After finishing building the program, I have tested the success of the program and also the circuit. I have managed to make a program that uses the IOT application to work with the circuit I have built. What if the PIR sensor can detect heat, the buzzer will automatically produce a sound and also send a notification to the user by using an IOT application. The user's smartphone screen will display "WARNING! Please check your smart mouse traps."

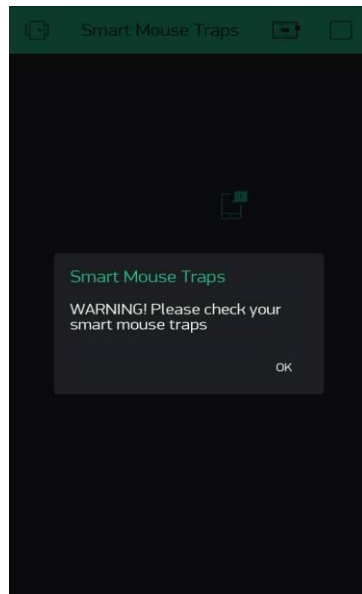


Figure 4.1: The display that will appear on the user's smartphone when the mouse is present

4.2 DISCUSSION

The problem of pests like rats will never end. And many traps that are on the market do not guarantee cleanliness and success in catching mice. Mouse traps that are on the market can now be used to trap only one mouse at a time, with the improvised SMART mouse trap it can now trap more than one mouse but not more than 3 to maintain cleanliness. The problem of the uncontrollable smell of rats is also one of the main problems that residents and workers are concerned about. Most traps sold cannot handle this problem. So the use of trap materials needs to be upgraded to materials that are not easy to rust, durable and also odorless. With that, a project named Smart Mouse Trap was born. This Smart Mouse Trap is a mouse trap that has been upgraded into a modern mouse trap and also has its own advantages. These traps have chemical sprays that can eliminate rodents and also react to air. The function of this airtight rat trap is that when the chemical sprayer releases the chemical to eliminate the rat, the smell of the rat and also the smell of the chemical is only inside. So it will not harm the user and also no bad smell anymore. This trap also makes it easier for users because users can know the presence of mice in the trap. When the sensor can detect the presence of mice in the cage at the same time the buzzer will also sound, the user will get a notification from the IOT application that has been specially programmed to catch these mice. This trap can also catch more than one rat and no more than 3 rats because of cleanliness.

CHAPTER 5: CONCLUSION AND RECOMMENDATION

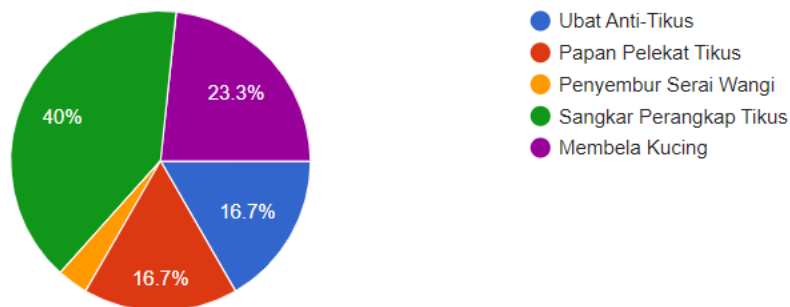
5.1 CONCLUSION

In conclusion, I was able to build a coding to put into the esp8266 to complete the circuit thus running the program. I was also able to build a program and rendering it using an existing IOT application for users to receive notifications from it in case where the SMART are triggered. Not only that, I was able to figure out how this trap circuit works so well with its environment. Moreover, extensive research are needed so that it will be globally marketable as to increase the output of the entrapped rats with lower cost of assembly and product availability. Here are some of the questions that respondents/people mostly agreed and support that can lead this project to become a successful to help people that to help those who have problems in dealing with pest problems such as rats.

Pernahkah anda menggunakan sebarang peralatan dalam menghapuskan haiwan perosak seperti tikus?



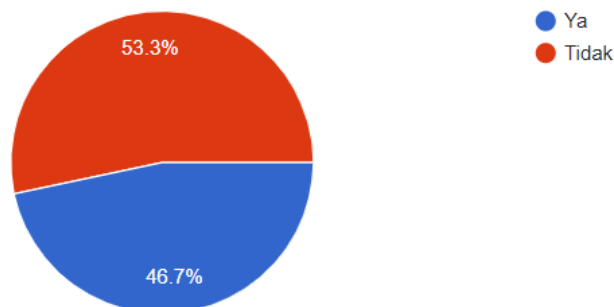
30 responses



Adakah anda merasakan perangkap tikus yang berada di pasaran berkesan dalam menangani masalah populasi tikus yang meningkat?



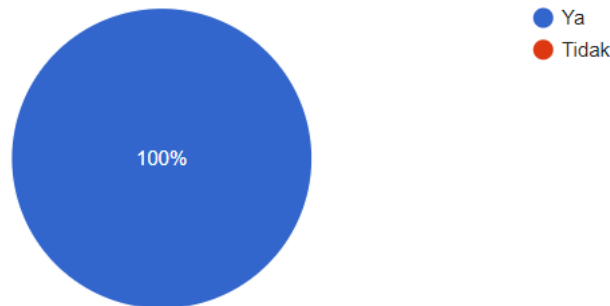
30 responses



Adakah anda rasa dengan adanya perangkat yang dinaiktaraf seperti **Smart Mouse Trap (SMouT)** dapat menangani masalah populasi haiwan perosak seperti tikus?



30 responses



From the response we can conclude that all the responses gives the positive feedback regarding my project Smart Mouse Trap (SMouT). I am also thinking of putting my project on the market to be marketed to industrialists, restaurant owners and even housewives. With this product, they don't have to worry about the problem of mice because this trap can save costs because it can catch more than one mouse and can eliminate mice in a short time. not only that, this trap can also maintain cleanliness and odorless because it is airtight.

5.2 SUGGESTION AND FUTURE WORK

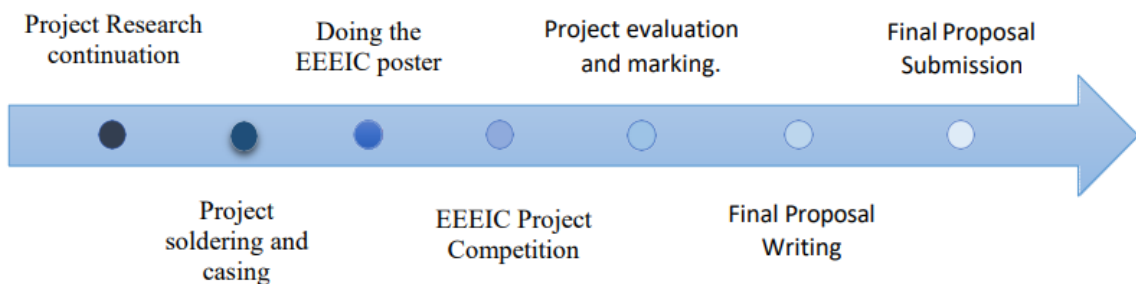
The project has some drawbacks. One of them is that this trap cannot determine how far away the mouse is from it. Only the heat of the pest can be detected by the available sensors. For the improvement of this project, I would like to add a sensor that can detect the distance and sound of pests like rats when it is close to the trap, users will be able to be notified via an apps telling users that pests like rats are close to the trap. This causes these traps to have more advantages than the traps that are on the market today.

CHAPTER 6: PROJECT MANAGEMENT AND COSTING

6.1 INTRODUCTION

This project involves the cost of purchasing components and materials throughout its implementations. Components involving cost are hardware Rat Trap, ESP8266, PIR sensor, IR sensor, buzzer, chemical spray bottle, project box, breadboard and wire. All of these components are purchased through an online purchase methods to make it easier as well as save the costs. The overall gross budget estimate RM 114.00 and other expenses is at RM 99.00. This Project can be considered as less as costly project compared to other projects that can cost over a thousand ringgits. The cost of the project is also in line with one of the key features of a good project developer that is low cost but have a high-quality project.

6.2 Milestone



6.3 COST AND BUDGETING

No	Components and materials	The Unit Price	Quantity	Total
1.	Rat Trap	RM 29.90	1	RM29.90
2.	Acrylic	RM 6.80	4	RM 27.20
3.	PIR Sensor	RM 5.90	1	RM 5.90
4.	Buzzer	RM 2.40	1	RM 2.40
5.	IR Sensor	RM 2.90	1	RM 2.90
6.	Jumper Wire	RM 4.60	3	RM 13.80
7.	ESP8266	RM 16.90	1	RM16.90
8.	Chemical Spray Bottle	RM 15.00	1	RM15.00
Total :				RM 114.00
	LIST OF OTHER COSTING	The Unit Price	Quantity	Total
1.	Postage	RM 4.50	8	RM 36.00
2.	Project Box	RM 8.00	1	RM 8.00
3.	Power Bank	RM 55.00	1	RM 55.00
Total:				RM 99.00
<u>Overall</u>				RM 213.00
Total:				

6.4 FINAL PROJECT



AMAL AMANI BINTI MOHAMED ZAIDI
08DEP19F-1199

PENYELIA: TS NORAZLINA BINTI JAAFAR

SMART MOUSE TRAP (SMOUT)

This Smart Mouse Trap (SMOUT) can catch more than one rat inside at the same time compared to rat traps on the market. Users can also control this (Smout) by using the Blynk application that will be provided for the purpose of knowing the presence of rats in this trap.

PROJECT OBJECTIVE

- To build an automatic mouse trap that use motion sensor to detect movement and also to eliminate mouse by using chemical.
- To develop a notification system that enabled to send signals to buzzer that can alert the user through an apps.

Easy to use
Guaranteed Cleanliness
Odorless

INPUT: Smart Mouse Trap, PIR Motion Sensor

PROCESS: ESP8266

OUTPUT: Mobile Phone Notifications, Buzzer

6.5 CHAPTER SUMMARY

This chapter explains about planners and Gantt Charts when completing projects from start to finish. This chapter also include Milestone with attached image for better understanding and evidence of completion. Completion updates from time to time are shown along with what the final product looks like.

Actual expenses may differ from those calculated above depending on market prices. This part which is chapter 6 focuses on project management and cost and also many different sections which include Introduction, Gantt Chart and Activities Project, Milestone do the project and finally the project cost schedule and budget. The conclusion is that I have succeeded in building a modern mouse trap, the Smart Mouse Trap (SMouT). With the result of this project, my objective was achieved.

REFERENCES

- [1] Siti Nur Laila Binti Mukhtar (2004). "The Application of the Infra-Red Sensors in a Mouse Trap Design". Retrieved from: <http://utpedia.utp.edu.my/7959/1/2004%20Bachelor%20-%20The%20Application%20Of%20Infra-Red%20Sensor%20In%20The%20Mouse%20Trap%20Design.pdf>
- [2] Gifson, Albert dan Slamet. 2009. Sistem Pemantau Ruang Jarak Jauh Dengan Sensor Passive Infrared Berbasis Mikrokontroler AT89S52. ISSN: 1693-6930. Jakarta: Jurnal TELKOMNIKA Vol. 7, No. 3, Desember 2009: 201-206
Retrieved from: <http://telkomnika.uad.ac.id/index.php/TELKOMNIKA/article/download/595/404>
- [3] AHMAD NUR MAHRIZA, Budi Bayu Murti, S.T., M.T. 2021. RANCANG BANGUN PROTOTYPE PERANGKAP TIKUS BERBASIS IOT (INTERNET OF THINGS).
Retrieved from: <http://etd.repository.ugm.ac.id/penelitian/detail/200501>
- [4] Rizman ZI, Hashim FR, Yassin IM, Zabidi A, Zaman FK, Yeap KH. Design an electronic mouse trap for agriculture area. J. Fundam. Appl. Sci., 2018, 10(1S), 824-831.
Retrieved from: <https://www.ajol.info/index.php/jfas/article/view/168469>
- [5] Franz, S.C, and CM. Padula, "A Laboratory Test Method for Evaluating the Efficacy of Glueboards for Trapping House Mice," Vertebrate Pest Control and Management Materials: Fourth Symposium, American Society for Testing and Materials, 1983, pp. 209-225.
Retrieved from: <https://kanez.proboards.com/thread/1880?page=1>
- [6] Khirod Chandra Sahoo ; Umesh Chandra Pati "IOT based intrusion detection system using PIR sensor"
Retrieved from: <https://ieeexplore.ieee.org/abstract/document/8256877>

APPENDIX 1 (GANTT CHART)

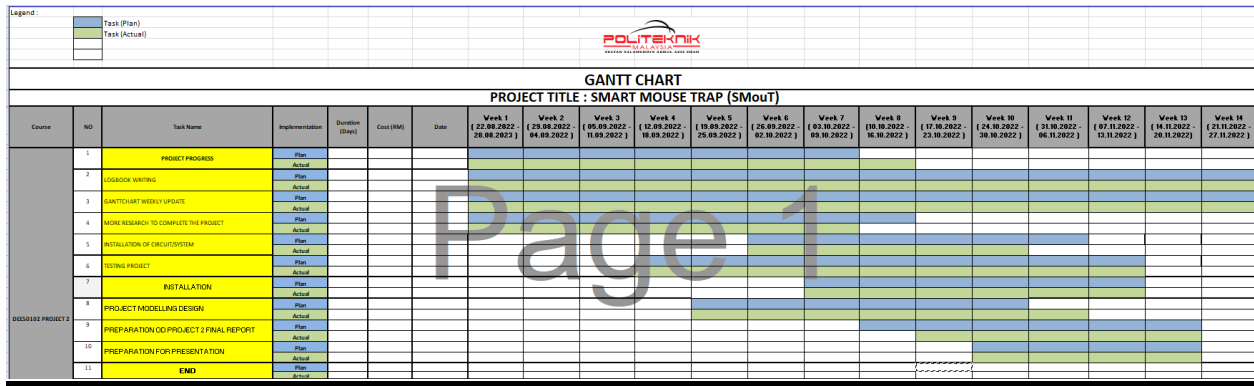
Legend :

	Task (Plan)
	Task (Actual)



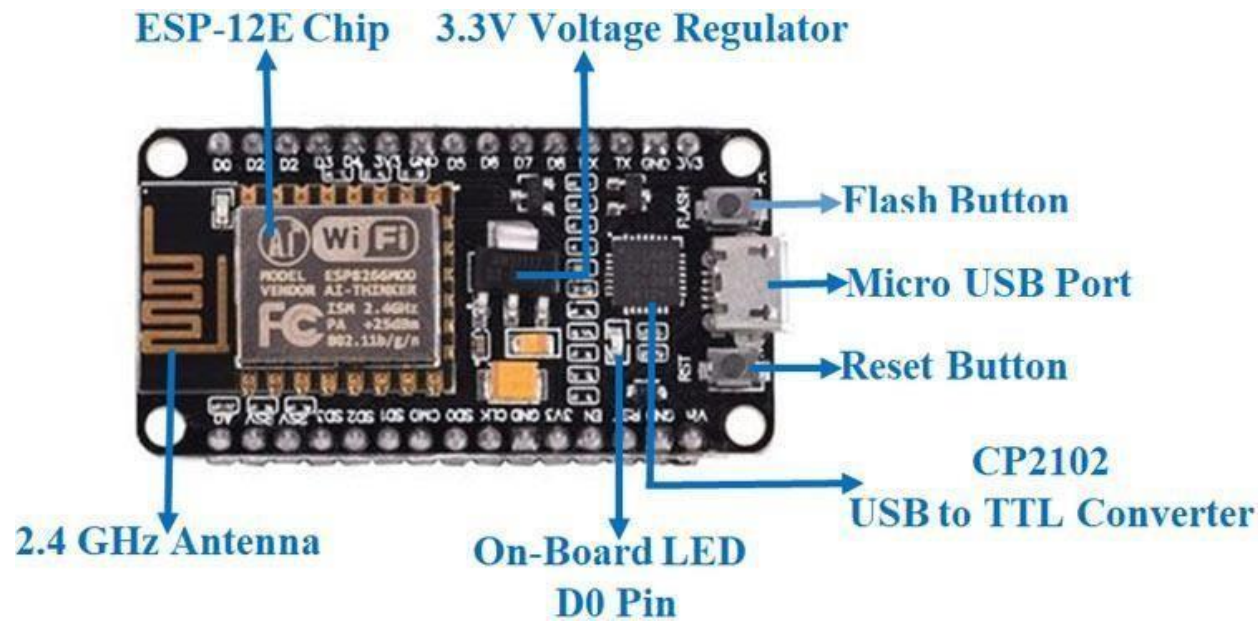
GANTT CHART PROJECT TITLE : SMouT (Smart Mouse Trap)

Course	NO	Task Name	Implementation	Duration (Days)	Date	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8	Week 9	Week 10	Week 11	Week 12	Week 13	Week 14
						(07.03.2022 - 13.03.2022)	(14.03.2022 - 20.03.2022)	(21.03.2022 - 27.03.2022)	(28.03.2022 - 03.04.2022)	(04.04.2022 - 10.04.2022)	(11.04.2022 - 17.04.2022)	(18.04.2022 - 24.04.2022)	(25.04.2022 - 01.05.2022)	(02.05.2022 - 08.05.2022)	(09.05.2022 - 15.05.2022)	(16.05.2022 - 22.05.2022)	(23.05.2022 - 29.05.2022)	(30.05.2022 - 05.06.2022)	(06.06.2022 - 12.06.2022)
DEE40082 PROJECT 1	1	Project Briefing	Plan Actual			Page 1													
	2	Introduction of the project	Plan Actual																
	3	Define the problem statement	Plan Actual																
	4	Identify the characteristic of innovation developed	Plan Actual																
	5	Writing project proposal	Plan Actual																
	6	Literature review	Plan Actual																
	7	Project Methodology	Plan Actual																
	8	Resources identification and selection	Plan Actual																
	9	Construct project planning	Plan Actual																
	10	Project proposal presentation	Plan Actual																
	11	Project Design Stage	Plan Actual																
	12	Analyzed preliminary finding	Plan Actual																
	13	Correlate preliminary result finding with and literature review	Plan Actual																
	14	Purpose solution through logbook and planning for project 2	Plan Actual																

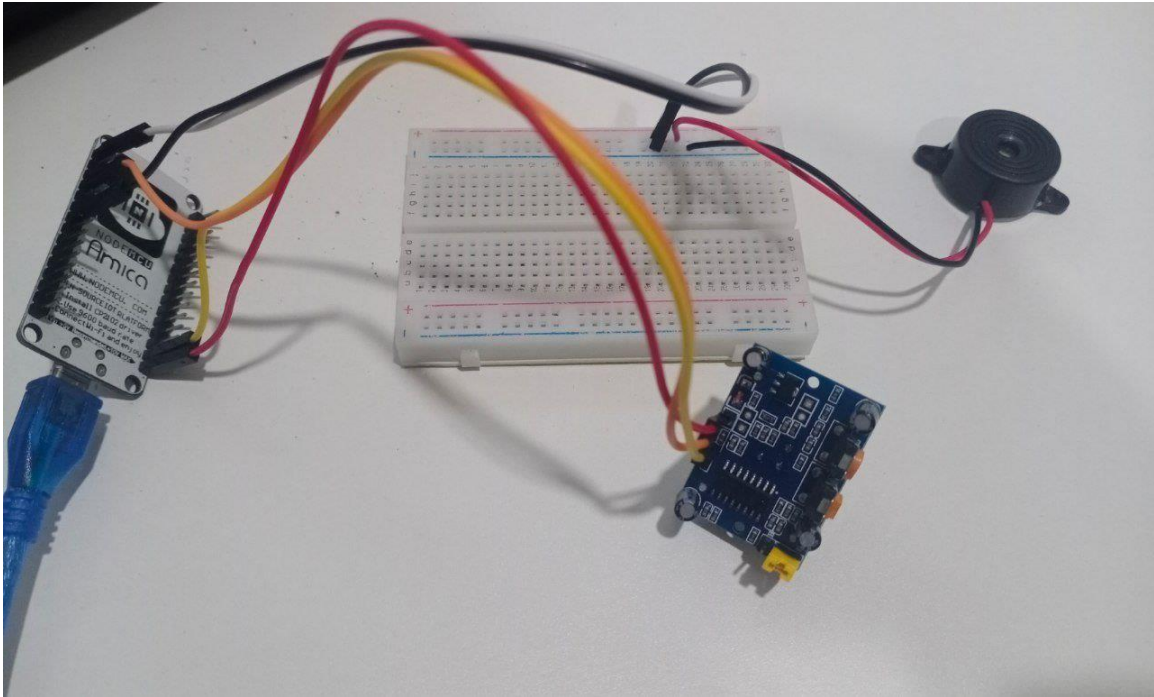


Page 1

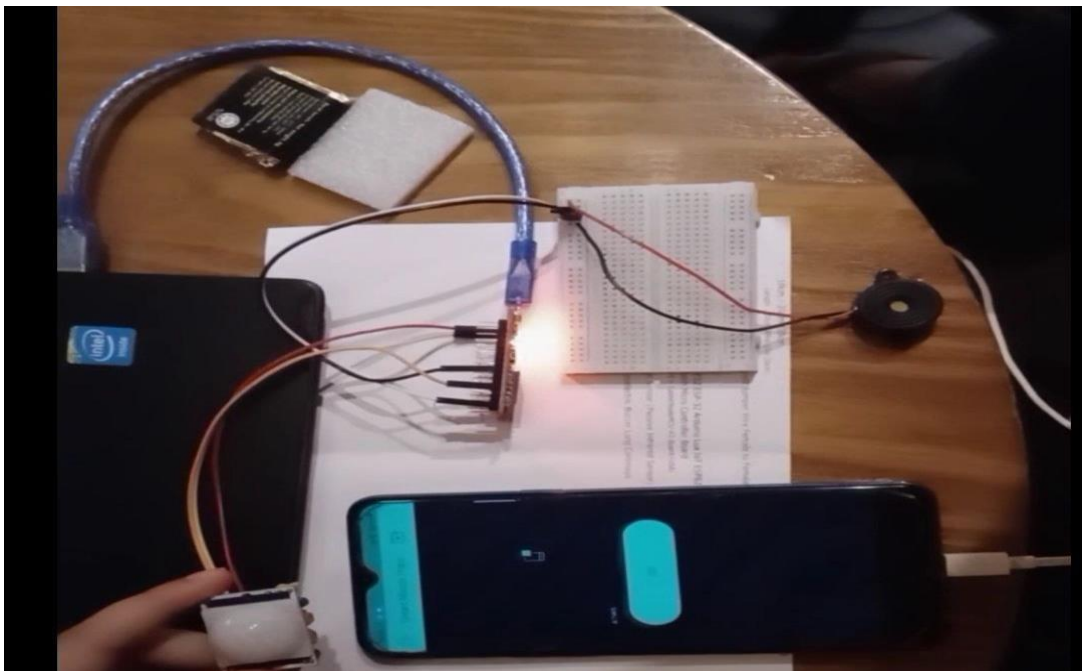
APPENDIX 3 (DATASHEET)



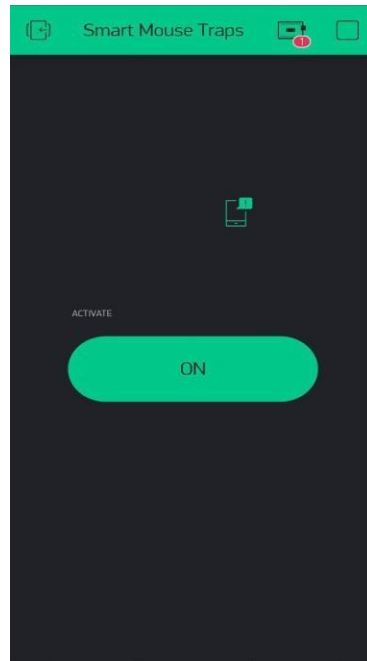
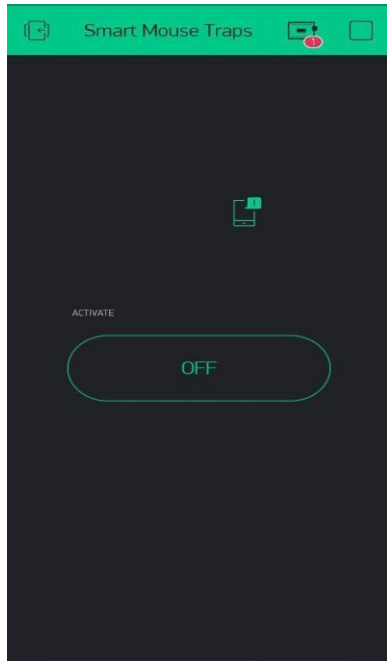
APPENDIX 4 (CIRCUIT)



Circuit with IOT application (BLYNK)



APPENDIX 5 (BLYNK)



The display that will appear on the user's smartphone when the mouse is present

