POLITEKNIK MALAYSIA

SULTAN SALAHUDDIN ABDUL AZIZ SHAH

FINAL YEAR PROJECT 2 REPORT: MOTORCYCLE FINGERPRINT SAFETY SYSTEM

DJJ 5141 : PROJECT 2

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ABSTRACT

This fingerprint system is a project to prevent motorcycle thefts these days. So with our project or initiative, this will reduce the risk of thefts that happen in Malaysia. We got this idea based on the collected problem statement which is nowadays motorcycle are easily being stolen by the thieves. The objective of this project is to upgrade the safety system, to ease the ignition of the bike and reduce the loss of motorcycles in the present time. Basically, we are making a new way to start a bike that is originally used starter. By using our project, they can ignite their motorcycle just by using their fingerprint. This way is more safe because the owner only can use their own bike. Methodology used in this research is firstly we make some questionnaires and distributed to motorcyclists because this will make we get a supportive feedback about their motorcycle's safety features. In our preliminary study, this project requires us to study about electronic devices and circuits. Thus, we have to make research to make a circuit so the fingerprint sensor will work well. In conclusion, we hope our project could decrease the rate of stolen motorcycle and give a new interesting way of starting your motorcycle.

CHAPTER 1

1.0 INTRODUCTION

Motorcycle fingerprint sensor is our project for final year project. This project is inspired from the smartphone fingerprint sensor that is widely used in any smartphones in this world. We cannot unlock our phone if the sensor cannot recognize the fingerprint and this way is safer than using the old way which is pin lock or pattern lock. Nobody can use your phone unless you open it with your own fingerprint. Because of this, we would like to apply this application for motorcycle due to the increased number of stolen motorcycle cases lately. This case is getting worst and it does not only happen to the moped bike, this case only happens at the superbike. But for the superbike, it is not so famous because stealing a superbike is not that easy like stealing a moped bike.

This problem should not be neglected by the manufacturer of the bikes because it is about customer's money. They probably should be aware of what is wrong with their safety features and try to fix it immediately. So, we are going with our idea which is making a fingerprint sensor for motorcycles. This fingerprint sensor will ignite your motorcycle and you will no longer use your key to start your motorcycle. This way is more convenient and modern like the technology that is already applied for the cars which is 'keyless entry'. If someone tries to break the sensor, an alarm sound will be produced to tell the nearby people that the bike is in danger. Hence, this way is better than the current safety features. Other than that, an alarm will be triggered which is it can make the thief feels afraid and panic so your bike will be in safe hands.

1.1 PROBLEM STATEMENTS

- Bikes are easily stolen.
- Motorcyclist may have problem using kick starter.

This project is to reduce the risk of losing bike that is increasing day by day. This problem giving trouble for bike's users for riding their bike anywhere. Thus, we are coming out with this idea so it will make riders more confident and feels safe.
Moreover, older person usually might have problems when starting their bikes by using kick starter. With our project, that problem will be solved because they would not longer using their kick starter but they will be using their own fingerprints.

1.2 OBJECTIVES

- Upgrade the safety system for motorcycles.
- To ease the operation for ignition motorcycles.

Main objective was improving safety systems which already have at the bikes right now.Our project clearly safes because only owner or selected fingerprints that were programmed to start the bike.
Other than that, our product will ease the older users when starting up their bike because they will only use their fingerprint instead their legs for the kick starter.

1.3 SCOPE AND SPECIFICATION

- Fingerprint sensor must be clean and dry.
- Applicable for all motorcyclists.
- Requires programming and electrical wiring.

1.4 STATISTIC FOR MOTORCYCLE THEFT

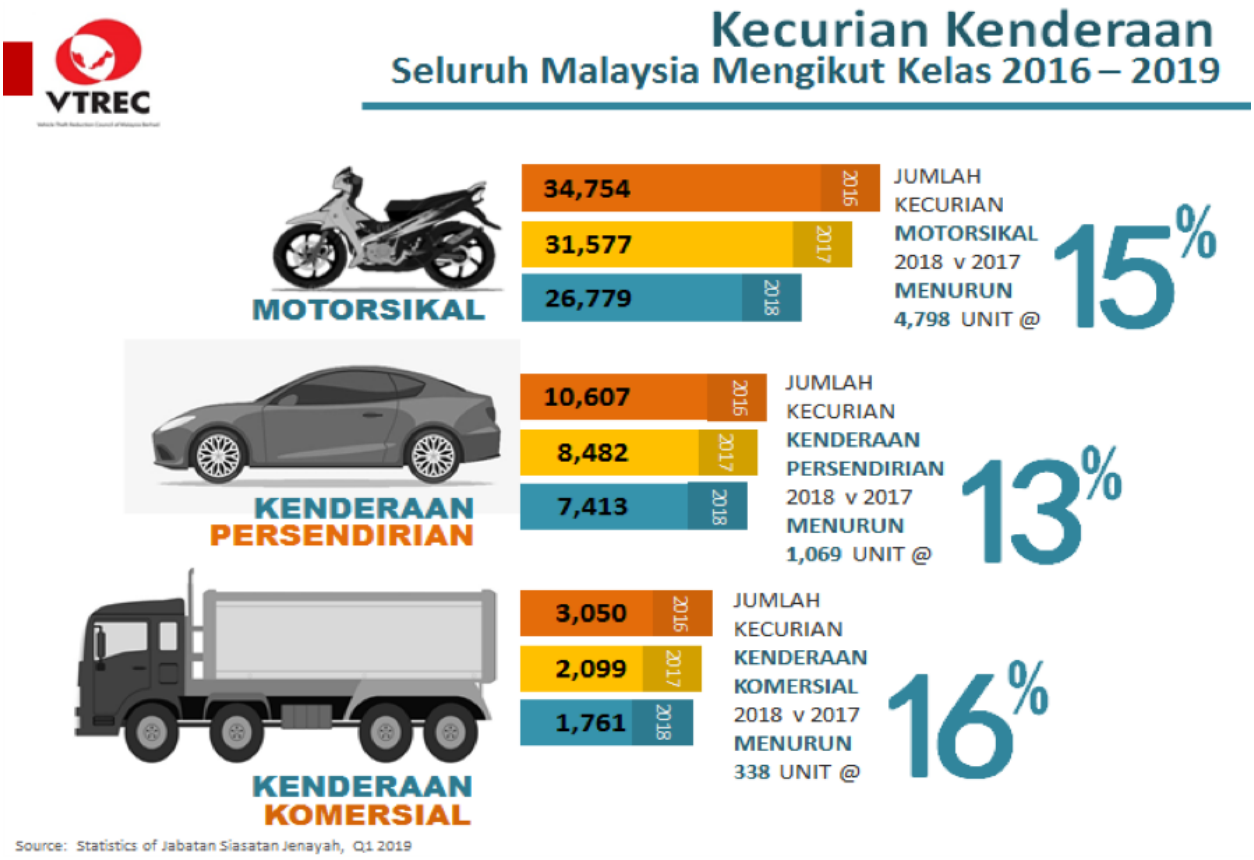


Figure 1:Statistic for motorcycle theft

Referring at the statistics for 2016,it shows that the number of motorcycles thefts were at the peak which is about 34754.For 2017,the rate for motorcycle thefts decreased to 31577.By 2018,statistics recorded decreasing to 26779.Eventhough motorcycle thefts's rates were decreasing yearly but motorcycle thefts still holds the most cases among the categories for vehicles. This problem should be solved and we are coming out with our product and ideas to reduce the risk for motorcycle thefts. We are hoping that Malaysia will be a country with 0% risk of vehicle thefts.

CHAPTER 2

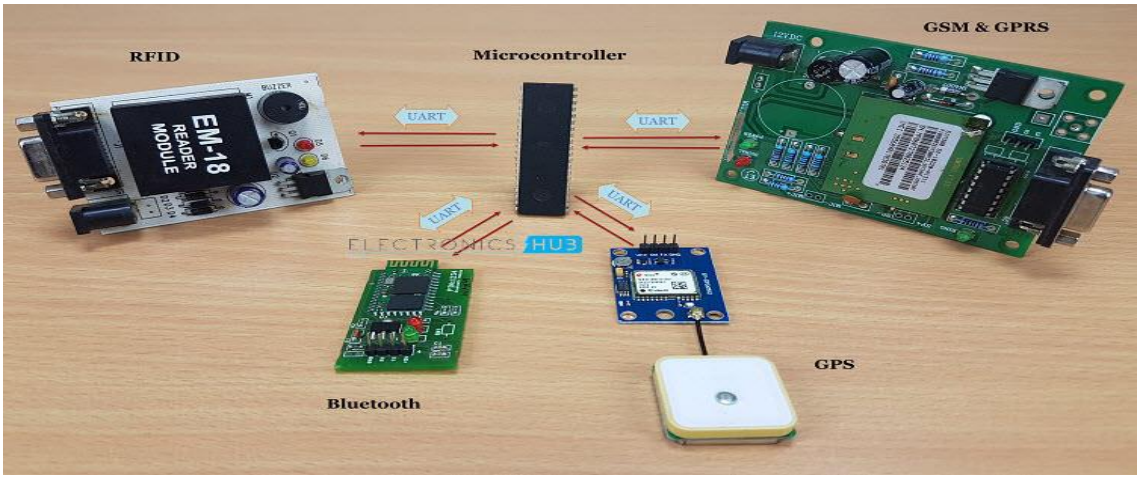
2.0 LITERATURE REVIEW

Biometrics is the use of measurable, biological characteristics such as fingerprints or iris patterns to identify a person to an electronic system. Once these measurements have been taken, they may be used to authenticate an individual or user. This is done by the sampled biometric against a template taken earlier. In Egypt, thousands of years ago, it was common for individuals to use physical traits or characteristics such as scars, eye and hair colour, height and etc to identify individuals for business transactions. Biometrics is a rapidly evolving technology that has been widely used in forensics such as criminal identification and prison security, and has the potential to be widely adopted in a very broad range.

By:Muhammad Aniq Faris bin Mustamam

1.Fingerprint Module

This is a fingerprint sensor module with TTL UART interface for direct connections to microcontroller UART or to PC through MAX232 / USB-Serial adapter. Which can store the fingerprint data in the module and can be configured in 1:1 or 1: N mode for identifying the person. The FP module can directly interface with 3v3 or 5v Microcontroller. A level converter (like MAX232) is required for interfacing with PC serial port. Optical fingerprint imaging involves capturing a digital image of the print using visible light. This type of sensor is, in essence, a specialized digital camera. The top layer of the sensor, where the finger is placed, is known as the touch surface. Beneath this layer is a light-emitting phosphor layer which illuminates the surface of the finger. The light reflected from the finger passes through the phosphor layer to an array of solid state pixels (a charge-coupled device)which captures a visual image of the fingerprint. A scratched or dirty touch surface can cause a bad image of the fingerprint. A disadvantage of this type of sensor is the fact that the imaging capabilities are affected by the quality of skin on the finger. For instance, a dirty or marked finger is difficult to image properly.



Features Figure 2

- Integrated image collecting and algorithm chip together, All-in-one.
- Fingerprint reader can conduct secondary development, can be embedded into a variety of end products.
- Low power consumption, low cost, small size, excellent performance.
- Professional optical technology, precise module manufacturing techniques.
- Good image processing capabilities, can successfully capture image up to resolution 500 dpi.

2. Biometric Security Using Fingerprint Recognition

Subhran and Venkata introduced the security system using the biometric fingerprint. The main objective of this security system is to implement fingerprint recognition on the PXA27x DVK platform. In this article, the authors describe several types of fingerprint analysis. Features include a fingerprint patterns which were characteristic based on aggregate ridges which is a unique feature that is found in the pattern. These three basic patterns were a fingerprint ridge arches, loops, and circles. In addition, the fingerprint sensor were also been used by the author. Fingerprint sensor was intended for shooting digital images called scans fingerprint pattern streaming. This live scan, digital processed to create a biometric template which has stored and used for matching. The fingerprint sensor technology used were optical, ultrasonic and capacitive. In this project the author uses Siemens ID Mouse. Siemens ID Mouse was a device that uses capacitive fingerprint reader USB2.0. PXA27x platform support for Linux kernel versions up to 2.6.9 bond, for drivers Siemens ID Mouse is available in several versions for example in version 2.6.10 and above.

3.Security System Using Password

S. R. Khan implemented the security system using password. To lock password based microcontroller based, most of them used Peripheral Interface Controller (PIC) as microcontroller while there are also some implemented Atmel chip and FPGA. Electronic-based key presented which was based on key low-cost PIC with simple designs 4x4 keypad used as an input and the relay was used as a key. Another key based password system named Office Access Control System (Khan, 2012).It is a low cost system that uses to block unauthorized persons to access in certain zones.PIC is used as a main controller and keypad 4x4 is available in the system. Generally, this system was a little bit different because it had an alarm function. Another similar electronic key also introduced (Muhammed, 2012).Just like the previous key, it uses a PIC microcontroller and keyboard as input 4x4.However,it had some additional functionality that the password can be reset and function of the backspace added. In addition, the system must be seamless as the software was approved without any bugs. FPGA-based electronic key has been introduced. He allegedly unreliable as a process carried out by hardware and easy to modify because it can accommodate the latest design into an FPGA without any hardware changes. The main disadvantage is that the price might be higher than other locks that used a microcontroller chip (Angang and Decai, 2011).In addition, Atmel based systems have multiple subsystems such as locking system, temperature control, lighting and fire detection system turns. In this project, a system used password authentication to receive input from the keyboard which was 9 considered locks. Lock was installed in the door where it was not visible from the outside, and this reduces the chance of damage by intruders.

By Eizat Iffan bin Baharudin

4.Security Box

Security box is usually located in a house owned by the bank and the private rights which are used to store valuables. A safe deposit box is purchased from the company and can be accessed with keys, pin numbers or some other security pass. Valuables such as documents and jewelry placed inside and customers rely on the safety of buildings to protect those valuables. Fingerprint based security box using Arduino is design to make the box more safety. This project used a biometric fingerprint reader to secure the storage box.

Figure 3

5.Design and development of fingerprint based car starting system.

Aim of this paper is to design and develop a fingerprint based car ignition system with a view to reducing car theft and to ward off unauthorized users. Recently, car hijack has been on the increase as armed robbers focus on stealing cars especially the brand new ones. Hence the need to protect the cars from hijackers is considered to be essential. In this paper, nobody can ignite the vehicle except authorized by designed system already captures its fingerprints pattern features through enrolment into the system. This is achieved with the use of fingerprint module,PIC18F4620 microcontroller
and Liquid Crystal Display (LCD) module.

6.Vehicle starting system using fingerprint.

The issue of vehicle hijacking or car theft due to easy access to vehicle's functional system can be reduced by using a biometric system.The starting of vehicle's engine as the necessity of protection and access restriction in many luxurious assets is now very important.Biometric systems have a long time served as a strong security system in many different applications and it will be implemented in automobile industry.Biometric system is a technological system that uses information about a person to identify such person.It relies on specific data about unique biological trait in order to work effectively.This system involves running data through algorithms for a particular result,usually related to a positive identification of a user or other individuals.The signals are generated by the arduino to appropriate module circuit.

CHAPTER 3

3.0 METHODOLOGY

3.0.1 INTRODUCTION OF METHODOLOGY

The methodology is the general research strategy that outlines the way in which research is to be undertaken and, among other things, identifies the methods to be used in it.These methods, described in the methodology, define the means or modes of data collection or,sometimes, how a specific result is to be calculated.Methodology does not define specific methods, even though much attention is given to the nature and kinds of processes to be followed in a particular procedure or to attain an objective.

When proper to a study of methodology, such processes constitute a constructive generic framework, and may therefore be broken down into sub-processes, combined, or their sequence changed.

A paradigm is similar to a methodology in that it is also a constructive framework. In theoretical work, the development of paradigms satisfies most or all of the criteria for methodology. An algorithm,like a paradigm is also a type of constructive framework, meaning that the construction is a logical, rather than a physical,array of connected elements.

3.0.2 METHODOLOGY FOR CIRCUIT DESIGN AND PROGRAMMING

By:Muhammad Aniq Faris bin Mustamam

1. Design the printed circuit board (pcb).

We went to the electronic shop and making some survey on electronic parts and making some negotiation about the price.We also searching for arduino nano and others components such as fingerprint scanner and some additional parts.When it is already completed,we decided to design the board and solder it.

Figure 4

By:Eizat Iffan bin Baharudin

2. Soldering all the parts and test the pcb.

We went to our friend's house and borrow the soldering equipment such as soldering iron,solder lead,wire cutter and many more.First of all,we try to solder to another board to improve our skills and confidence level so our actual board will be flawless and perfect.After we solder the board,we test it with power supply and check if there is some malfunction components before move to the next stage.

Precautions when soldering

- Never touch the element or tip of the soldering iron. They are very hot (about 400°C) and will burn.
- Hold wires to be heated with tweezers or clamps.
- Keep the cleaning sponge wet during use.
- Always return the soldering iron to its stand when not in use. Never put it down on your workbench.
- Turn unit off or unplug it when not in use.

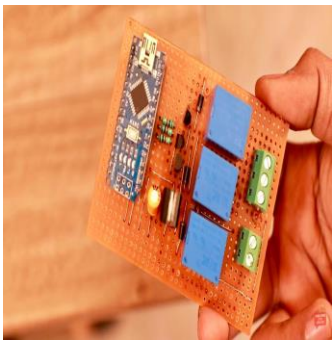
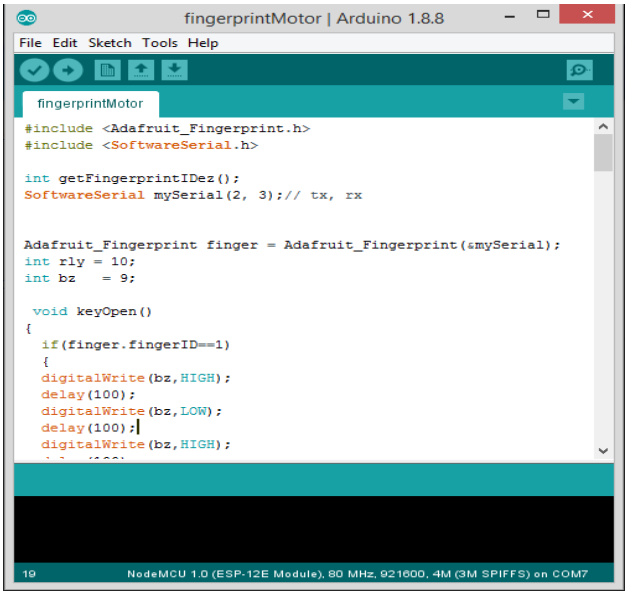


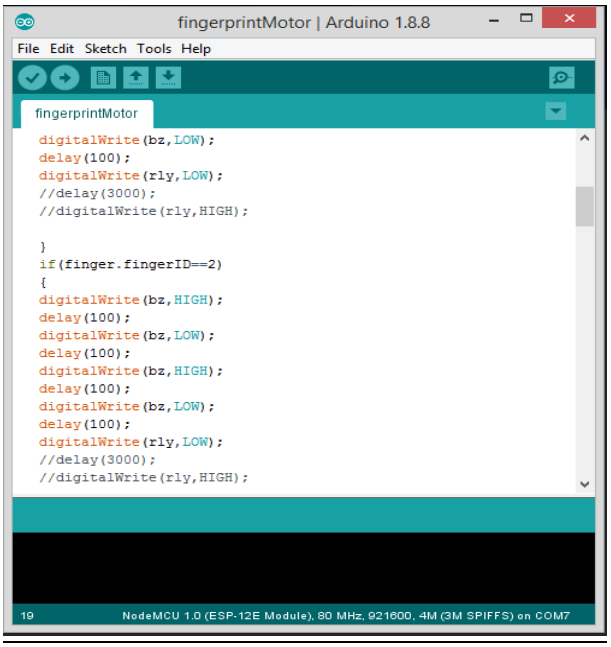
Figure 5

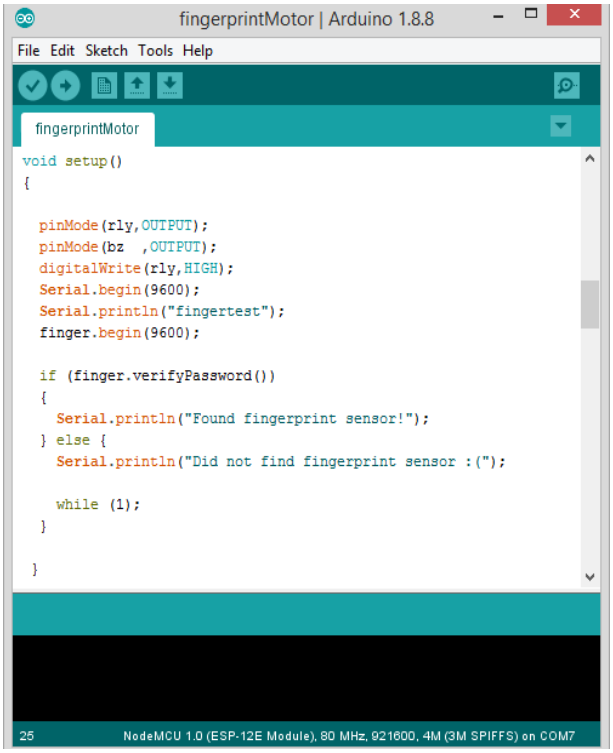
By:Muhammad Aniq Faris bin Mustamam

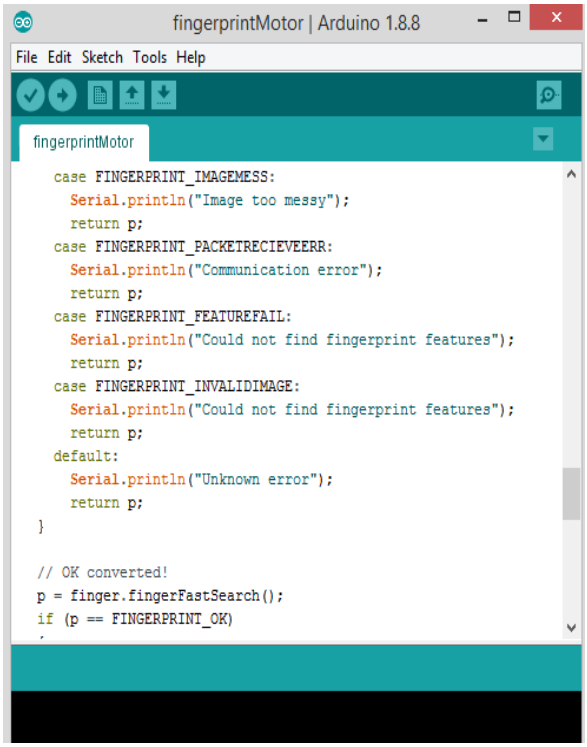
3. Program our fingerprint to the arduino nano.

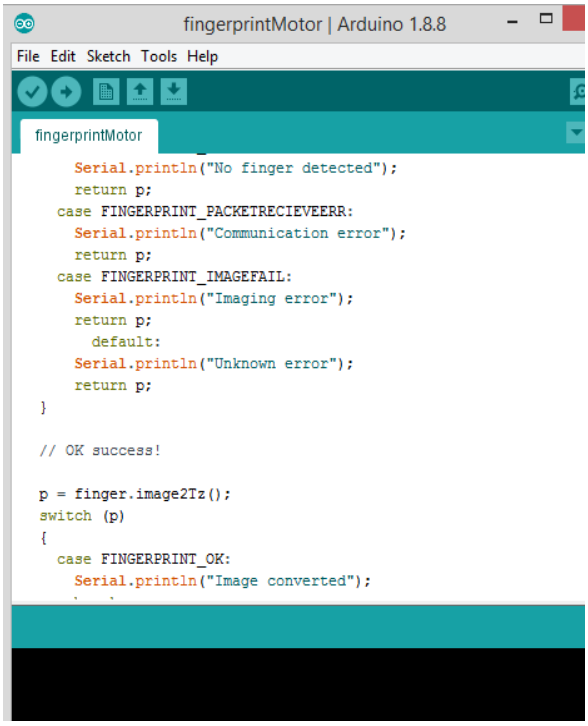
After soldering process,we continue to programming process.It requires arduino software and we have to connect the arduino ports to the computer ports.After that,open the arduino software and go to the adafruit fingerprint.Before that we have to connect the 4 wire that is from fingerprint to the arduino.When we the lights at the arduino starts blinking it means we can continue programming the board.When in adafruit fingerprint,we have to upload our code and id.For example,if you are using your left thumb print you can name it as 1 for your reference and click done.After that it will ask you to place your finger to the scanner and it will ask you to place it twice for confirmation.After that,you have to verify your fingerprint.It will shows some continuous numbers and it will increase or vice versa.If the numbers are increasing it shows that the fingerprint works well and you are good to go for fabrication process on motorcycles.



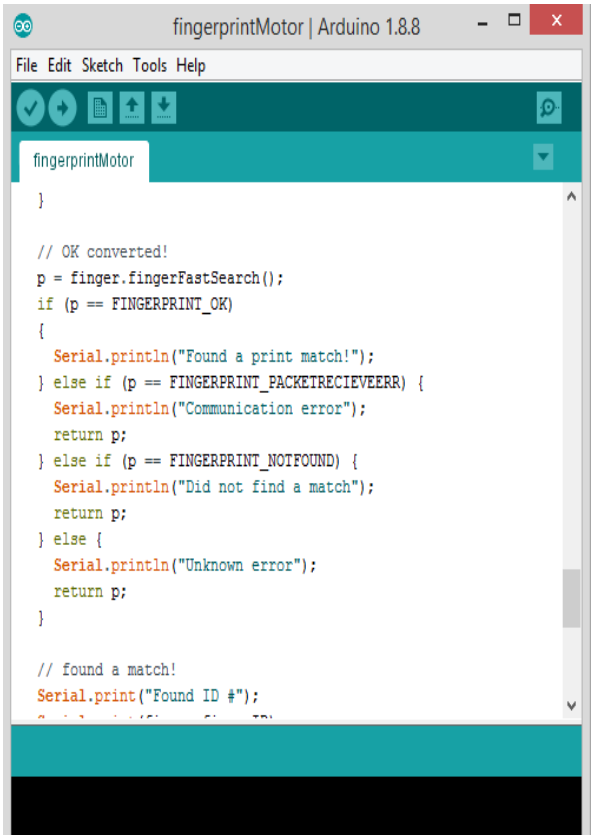

fingerprintMotor | Arduino 1.8.8
File Edit Sketch Tools Help
fingerprintMotor
digitalWrite(bz,LOW);
delay(100);
digitalWrite(rly,LOW);
//delay(3000);
//digitalWrite(rly,HIGH);
}
if(finger.fingerID==2)
{
digitalWrite(bz,HIGH);
delay(100);
digitalWrite(bz,LOW);
delay(100);
digitalWrite(bz,HIGH);
delay(100);
digitalWrite(bz,LOW);
delay(100);
digitalWrite(rly,LOW);
//delay(3000);
//digitalWrite(rly,HIGH);
19
NodeMCU 1.0 (ESP-12E Module), 80 MHz, 921600, 4M (3M SPIFFS) on COM7

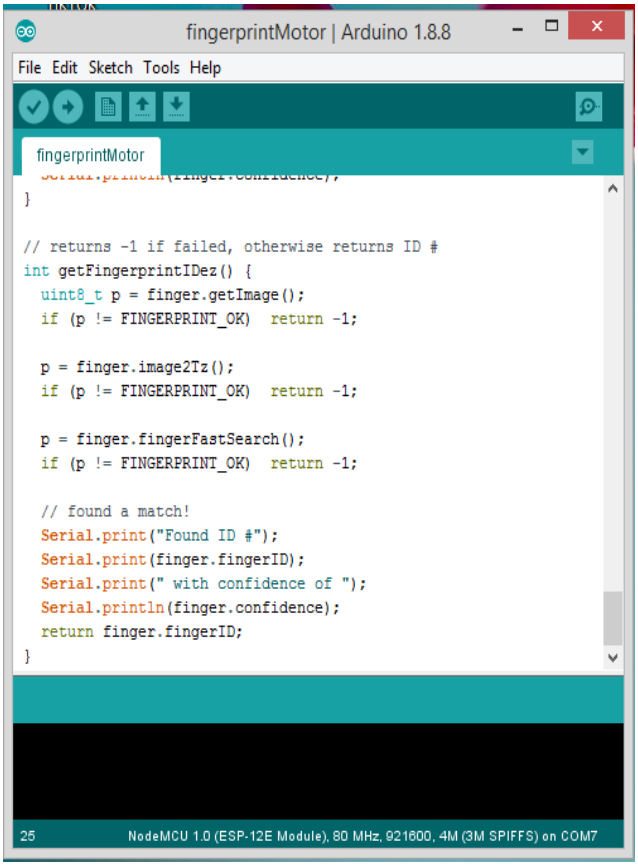

fingerprintMotor | Arduino 1.8.8
File Edit Sketch Tools Help
fingerprintMotor
void setup()
{
pinMode(rly,OUTPUT);
pinMode(bz ,OUTPUT);
digitalWrite(rly,HIGH);
Serial.begin(9600);
Serial.println("fingertest");
finger.begin(9600);
if (finger.verifyPassword())
{
Serial.println("Found fingerprint sensor!");
} else {
Serial.println("Did not find fingerprint sensor :(");
while (1);
}
}
25
NodeMCU 1.0 (ESP-12E Module), 80 MHz, 921600, 4M (3M SPIFFS) on COM7


fingerprintMotor | Arduino 1.8.8
File Edit Sketch Tools Help
fingerprintMotor
case FINGERPRINT_IMAGEMESS:
Serial.println("Image too messy");
return p;
case FINGERPRINT_PACKETRECIEVEERR:
Serial.println("Communication error");
return p;
case FINGERPRINT_FEATUREFAIL:
Serial.println("Could not find fingerprint features");
return p;
case FINGERPRINT_INVALIDIMAGE:
Serial.println("Could not find fingerprint features");
return p;
default:
Serial.println("Unknown error");
return p;
}
// OK converted!
p = finger.fingerFastSearch();
if (p == FINGERPRINT_OK)


fingerprintMotor | Arduino 1.8.8
File Edit Sketch Tools Help
fingerprintMotor
Serial.println("No finger detected");
return p;
case FINGERPRINT_PACKETRECIEVEERR:
Serial.println("Communication error");
return p;
case FINGERPRINT_IMAGEFAIL:
Serial.println("Imaging error");
return p;
default:
Serial.println("Unknown error");
return p;
}
// OK success!
p = finger.image2Tz();
switch (p)
{
case FINGERPRINT_OK:
Serial.println("Image converted");


fingerprintMotor | Arduino 1.8.8
File Edit Sketch Tools Help
fingerprintMotor
void loop()
{
if(getFingerprintIDez()>=0)
{
keyOpen();
}
}
uint8_t getFingerprintID()
{
uint8_t p = finger.getImage();
switch (p)
{
case FINGERPRINT_OK:
Serial.println("Image taken");
break;


fingerprintMotor | Arduino 1.8.8
File Edit Sketch Tools Help
fingerprintMotor
}
// OK converted!
p = finger.fingerFastSearch();
if (p == FINGERPRINT_OK)
{
Serial.println("Found a print match!");
} else if (p == FINGERPRINT_PACKETRECIEVEERR) {
Serial.println("Communication error");
return p;
} else if (p == FINGERPRINT_NOTFOUND) {
Serial.println("Did not find a match");
return p;
} else {
Serial.println("Unknown error");
return p;
}
// found a match!
Serial.print("Found ID #");


fingerprintMotor | Arduino 1.8.8
File Edit Sketch Tools Help
fingerprintMotor
}
// returns -1 if failed, otherwise returns ID #
int getFingerprintIDez() {
uint8_t p = finger.getImage();
if (p != FINGERPRINT_OK) return -1;
p = finger.image2Tz();
if (p != FINGERPRINT_OK) return -1;
p = finger.fingerFastSearch();
if (p != FINGERPRINT_OK) return -1;
// found a match!
Serial.print("Found ID #");
Serial.print(finger.fingerID);
Serial.print(" with confidence of ");
Serial.println(finger.confidence);
return finger.fingerID;
}
25
NodeMCU 1.0 (ESP-12E Module), 80 MHz, 921600, 4M (3M SPIFFS) on COM7

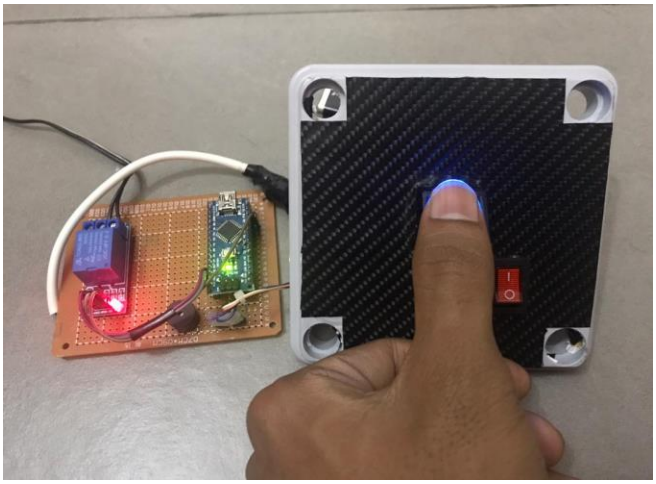


Figure 6

By:Eizat Iffan bin Baharudin

4. Install pcb to the motorcycle's wiring.

First of all,we have to open up all the screws at the headlamp of the bike.After that,find a wire that is connected to the starter and take out the wire.Find a source of wire and make it long so you can cut the wire.Other than that,connect the two wires to the ports.Connect the blue wire to the normally open ports while black wire to the command port.Moreover,we are using another power supply for supply the board which is 9v battery.It means we did not use the motorcycle's battery for the printed circuit board supply.When the fingerprint scanner already lights up,it means all the wiring are well connected and we are good to use our fingerprint to start the bike.Test the fingerprint efficiency by using other unrecognized finger to see the fingerprint biometric scanner.

Figure 7

5. Testing and make some adjustments for the project.

We test out the fingerprint scanner by using the right and the unprogrammed fingerprint.The fingerprint works well and reads out the programmed fingerprint in few seconds and starts the motorcycle.When we placed the unprogrammed fingerprint,it would not start the motorcycle.After that,we are making a box for storing the board and battery and most important the box must be waterproof.

Figure 8

BOX FOR STORING THE BATTERY,PCB AND FINGERPRINT SCANNER

Figure 9

3.1 FLOW CHART FOR USE THE FINGERPRINT SYSTEM

1. Open the motorcycle.

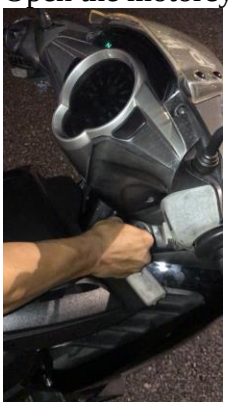


Figure 10

2. Switch on fingerprint system.

Figure 11

3. Put your finger to fingerprint sensor.

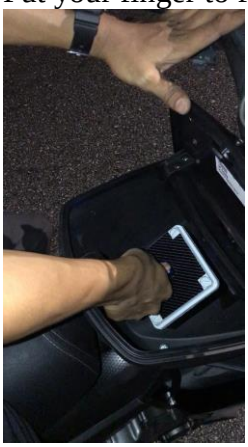


Figure 12

4. Switch off fingerprint system

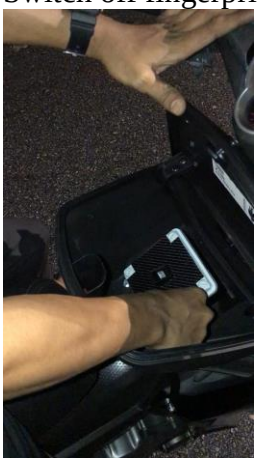


Figure 13

5. Ready to use.

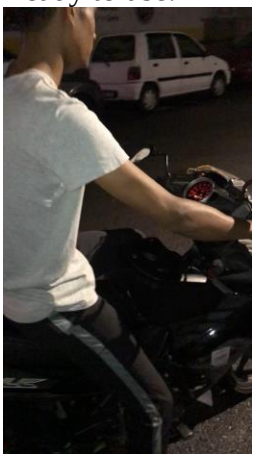
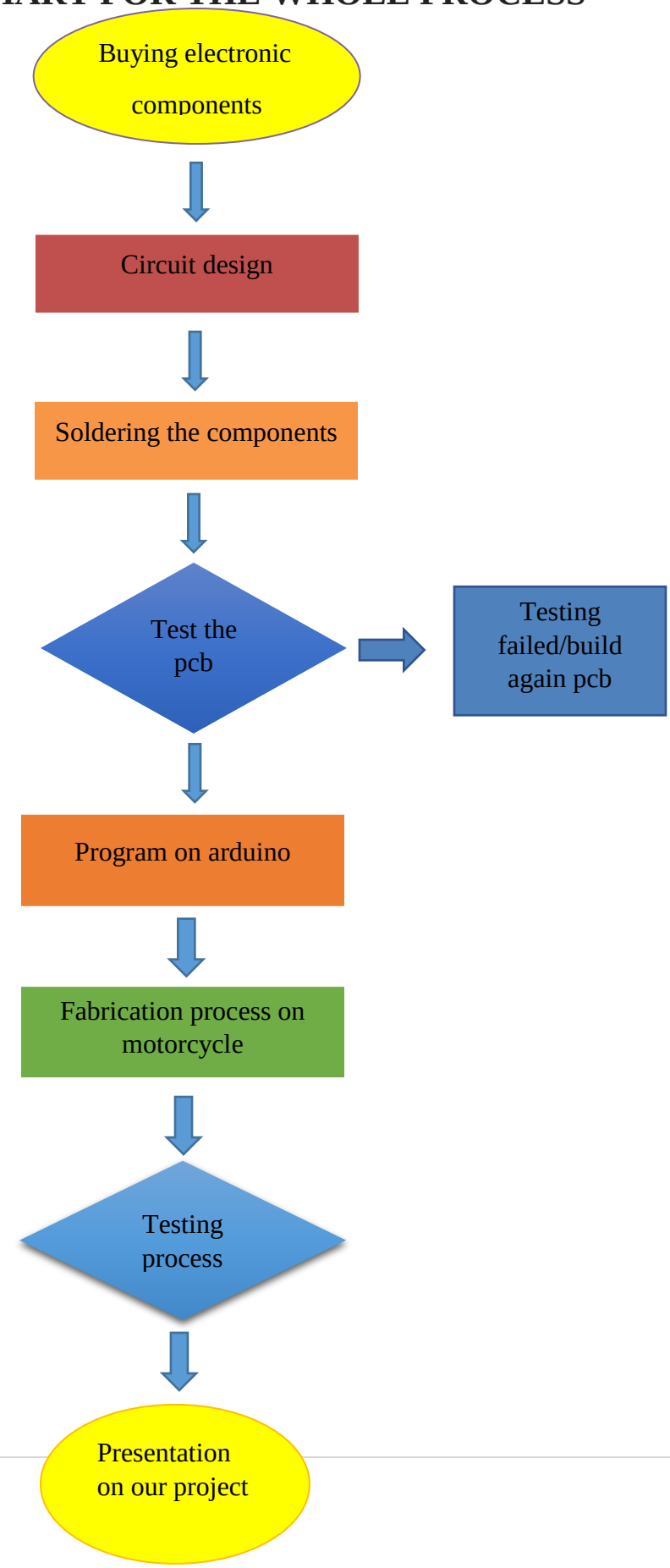


Figure 14

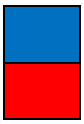
3.1.2 FLOW CHART FOR THE WHOLE PROCESS



3.2 GANTT CHART

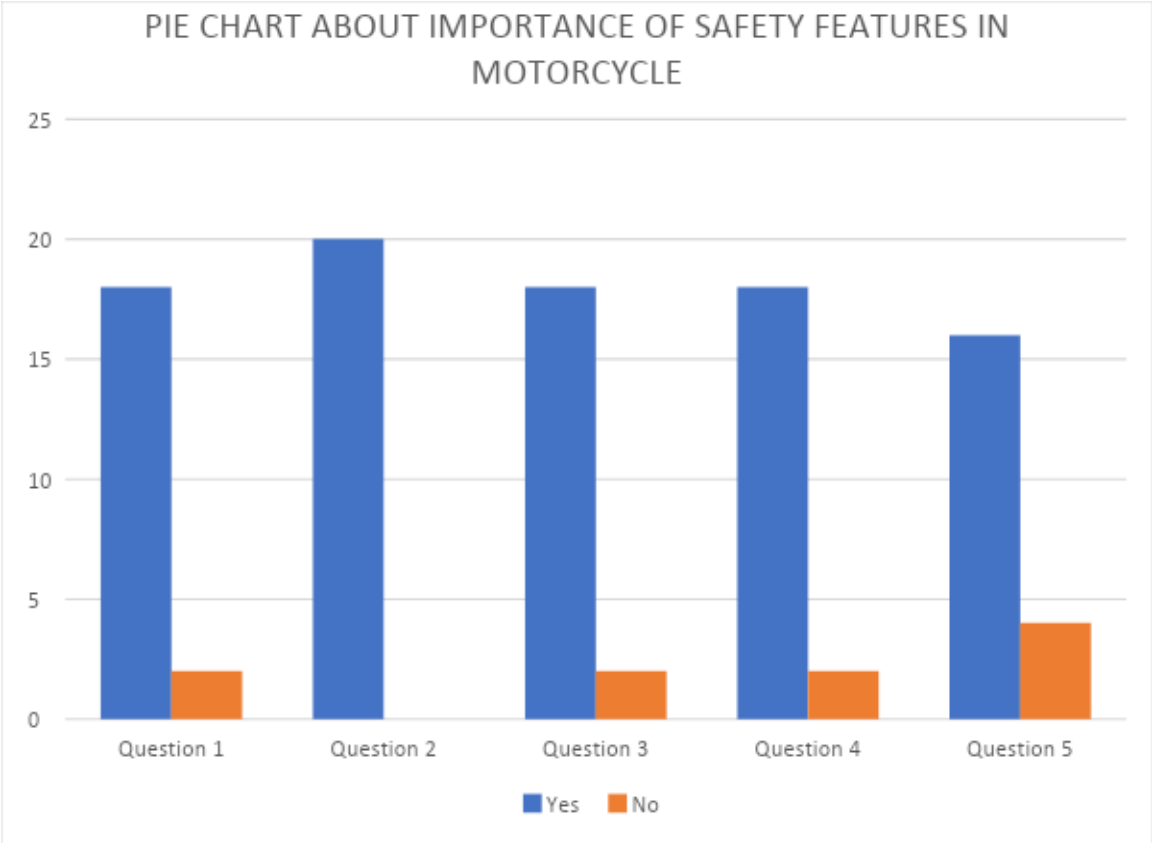
PROGRESS ACTIVITY	WEEKS														
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Survey components part															
Buy some of electronics part															
Buy a fingerprint scanner															
Soldering the components															
Doing some adjustments at the PCB															
Program the fingerprint at the PCB															
Test the fingerprint scanner															
Loop the PCB's wiring to the bike's wiring															
Testing the fingerprint when its already connected to the bike															
Make a switch that will turn off the PCB															
Make an alarm wiring to protect the fingerprint															
Make a storage box for storing the PCB and switch															
Presentation for final year project															
Report writing															

PLANNING
IMPLEMENTATION



CHAPTER 4

4.0 RESPONDENT RESPONSE CHART FROM QUESTIONNAIRES



Graph 1: Respondents from response

4.1 QUESTION ANALYSIS

Question 1

Do you hear any cases of motorcycles being stolen?
This question is about awareness of people about stolen motorcycle cases in our country.

Question 2

Do you agree on the upgraded motorcycle safety system?
This question is about asking respondent's opinion on upgrading motorcycle safety system

Question 3

Do you think by using a fingerprint to start a motorcycle is a good idea to decrease the rate of stolen motorcycle?

This question is asking about respondent's opinion on using fingerprint to start the motorcycle because it is a new or modern way compared to the old safety system on motorcycle.

Question 4

Do you think an alarm system on a motorcycle is needed?

This question makes the respondent thinks that an alarm system is compulsory or not important for their bike safety.

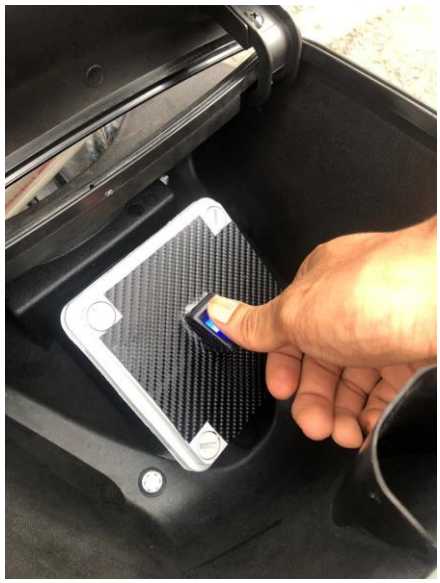
Question 5

Do you think additional safety features in a motorcycle is a necessity?

This question is asking about additional safety features that is modern and brand new is a good step to decrease the rate of stolen bike.

4.2 PROJECT TESTING

By:Eizat Iffan bin Baharudin

Number of testing (dry Condition)	Time taken (s)		Number of testing (wet condition)	Time taken (s)	
1	2.72		1	3.57	
2	2.92		2	-	
3	2.58		3	-	

4.2.1 PROJECT TESTING ON FINGERPRINT SENSOR

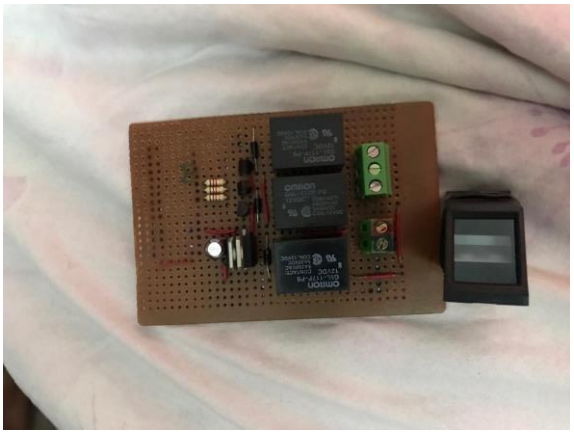
By:Muhammad Aniq Faris bin Mustamam

We have tested our fingerprint efficiency by 2 condition which is when the sensor is clean and dry and second condition is when the sensor is in wet condition.Time taken have been recorded and we have concluded that our fingerprint system will switch on the bike below 3s.On the other side,we can concluded that our fingerprint could not read the fingerprint when it is in wet condition.But when the fingerprint sensor is not that wet,it still can read but it takes about 3s above to start the motorcycle.Hence,it is important for us to take a good care for the fingerprint scanner to be clean and dry**.**

4.2.2 PROJECT TESTING ON PCB/BOARD

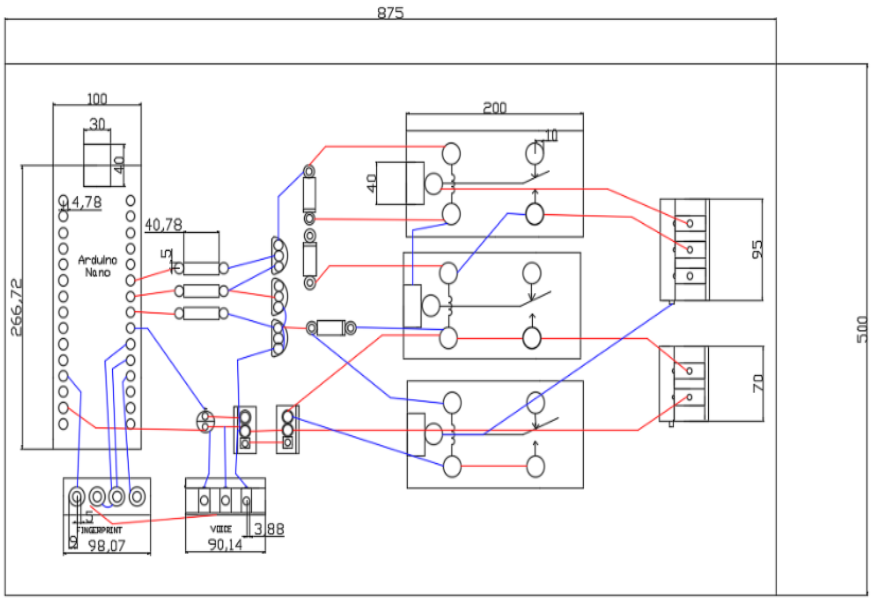
By:Muhammad Aniq Faris bin Mustamam

On the first testing for pcb, we have a problem which is the fingerprint sensor light is not working.It means that there is a problem when connecting the wire to the arduino. When we checked again the ports,we found the mistake which is for fingerprint system we have to solder the wire to 3.3V not 5V.When we connect the wire at the wrong port,it will bring damage to the board.In our case,our fingerprint have to be replaced with a new fingerprint**.**

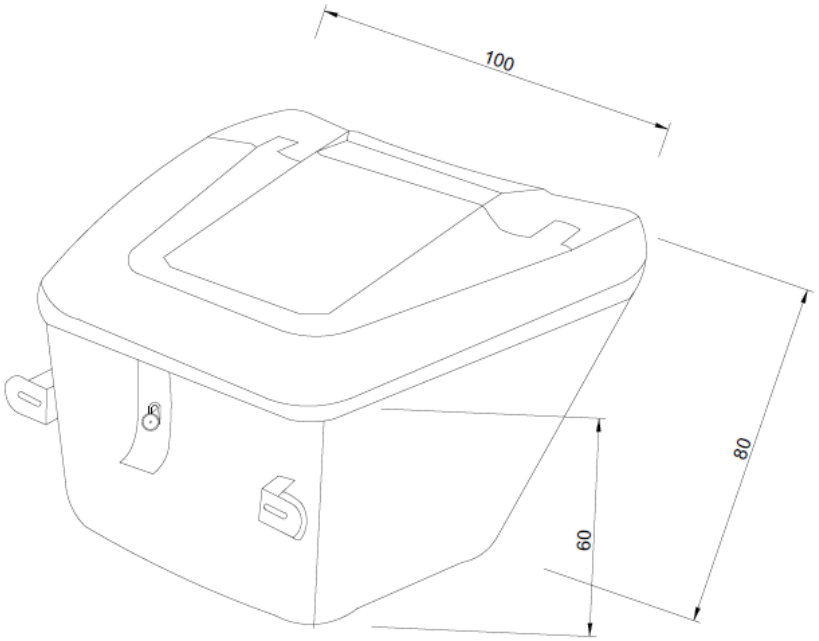


4.3 PROJECT DRAWING

By:Eizat Iffan bin Baharudin



Sketch 1:Arduino circuit



Sketch 2:Storing box

4.4 PROJECT COSTS

4.4.1 FIRST BUDGET

NO	DESCRIPTION	QUANTITY	PRICE PER UNIT	AMOUNT
1	RELAY 12V 5PIN	3	5.00	RM15.00
2	IN4007	3	0.20	RM0.60
3	1/4W 1K	3	0.10	RM0.30
4	2 WAY CONNECTOR	1	1.20	RM1.20
5	3 WAY CONNECTOR	1	1.50	RM1.50
6	7805	2	1.80	RM3.60
7	BOARD	1	7.00	RM7.00
8	ARDUINO NANO	1	28.00	RM28.00
9	FINGERPRINT SCANNER	1	110.00	RM110.00
				RM167.20

4.4.2 SECOND BUDGET

NO	DESCRIPTION	QUANTITY	PRICE PER UNIT	AMOUNT
1	FINGERPRINT SCANNER	1	90.00	RM90.00
2	GATE BOX	1	7.00	RM7.00
3	KAPPA BOX	1	95.00	RM95.00
4	BUTTON ON/OFF	1	0.90	RM0.90
				RM192.90

5.0 RECOMMENDATION

- **Make an alarm system to secure the system.**
  If there is an alarm system,it will be more secure so it will alarmed the thefts and make others around notice about the alarm sound.

- **Make an application with gps navigation to locate the bike if the bike was stolen.**
  Develop an application for tracking the current bike location.This way is the safest because the owner will know wherever the bike is.

- **Make a good design for fingerprint system`s design.**
  Design a proper box for storing the fingerprint,battery and printed circuit board which can protect from the water and has durability because the box contains the fingerprint system.

5.1 CONCLUSION

We have concluded that to decrease the risk of bike theft nowadays, we should also upgrade the safety system in line with modernization. This will make motorcycle theft is more difficult and takes more time. Furthermore, even though we already upgrade the safety features, motorcycle theft will also happens if we are careless and does not pay attention to our bike safety. Lastly, we hope that our project can decrease the risk of motorcycle theft and brings a new technology that can be a great way for motoring world.

REFERRENCES

By websites:

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- https://en.wikipedia.org/wiki/Touch_ID
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- https://randomnerdtutorials.com/fingerprint-sensor-module-with-arduino/

MECHANICAL ENGINEERING DEPARTMENT
POLITEKNIK SULTAN SALAHUDDIN ABDUL AZIZ SHAH

QUESTIONNAIRE

SECTION A: Demographic data of respondents

Please tick (/) according to your personal information that stated below:

1.GENDER: a) Male b) Female

2.AGE: a) < 20 b) 21 – 31 c) 31-41 d) > 41

3.OCCUPATION: a) Government b) Private c) Student

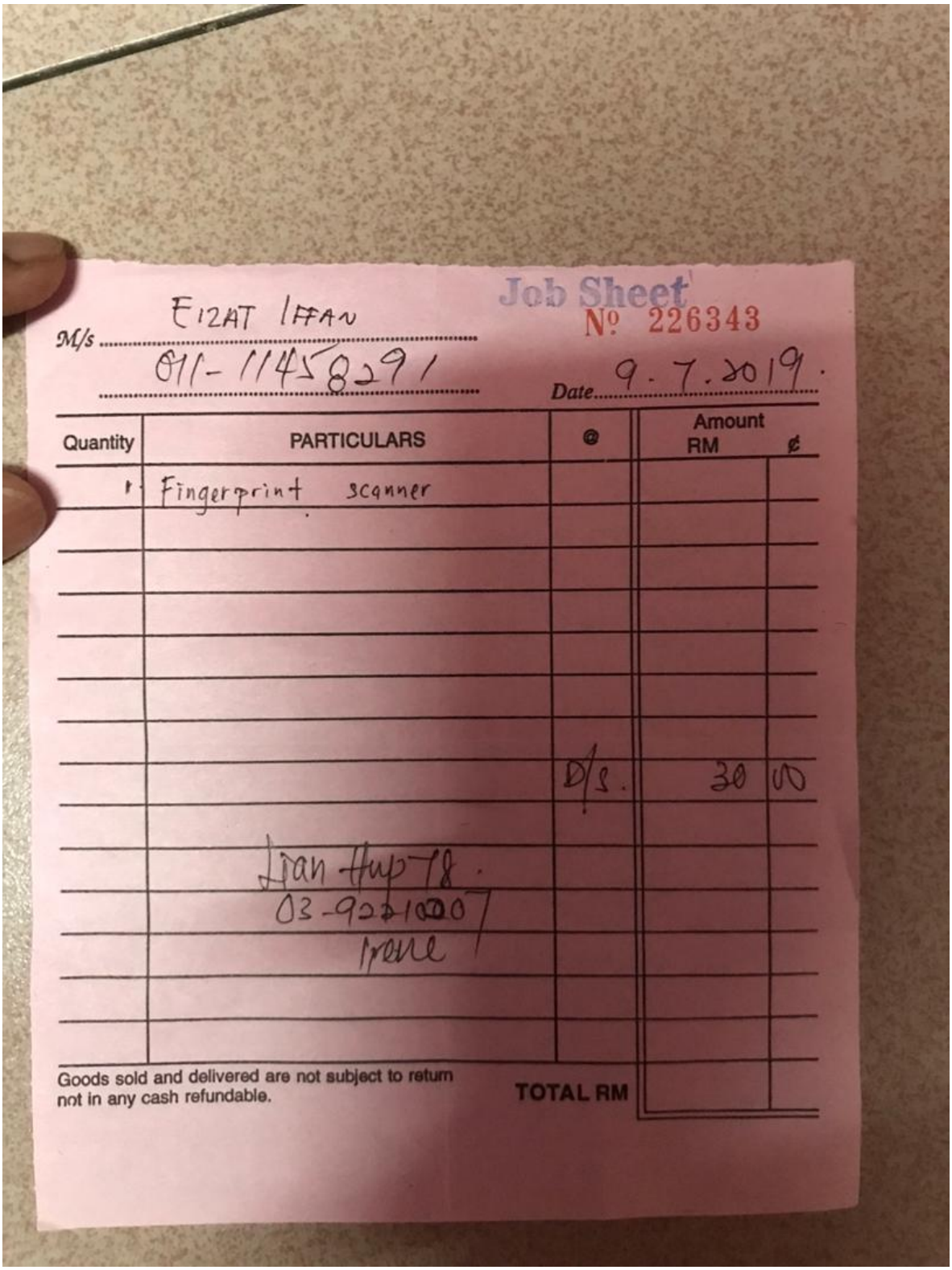
SECTION B : QUESTIONNAIRE

Please tick (/) for the agreed answer on the question:

NO	QUESTION	YES	NO
1.	Do you hear any cases of motorcycles being stolen?		
2.	Do you agree on the upgraded motorcycle safety system?		
3.	Do you think by using a fingerprint to start a motorcycle is a good idea to decrease the rate of stolen motorcycle?		
4.	Do you think an alarm system on a motorcycle is needed?		
5.	Do you think additional safety features in a motorcycle is a necessity?		

Thanks for your cooperation and time for answering to this question.

RECEIPT



Job Sheet
No 226343

M/s EIZAT IFFAN
011-11458291

Date 9.7.2019.

Quantity	PARTICULARS	@	Amount RM	¢
1	Fingerprint scanner			
		D/S.	30	00
	Iran Hup 78.			
	03-9221007			
	Irene			

Goods sold and delivered are not subject to return not in any cash refundable.

TOTAL RM

INVOICE

SPEED POWER MOTOR ACCESSORIES SDN. BHD.

(588965-P)
646, JALAN SENTUL,
51000 KUALA LUMPUR
TEL : 03-4044 8901
FAX : 03-4044 8902
NAME : FENDY

---

1. KAPPA BOX K10N
1 X 95.00 - 95.00

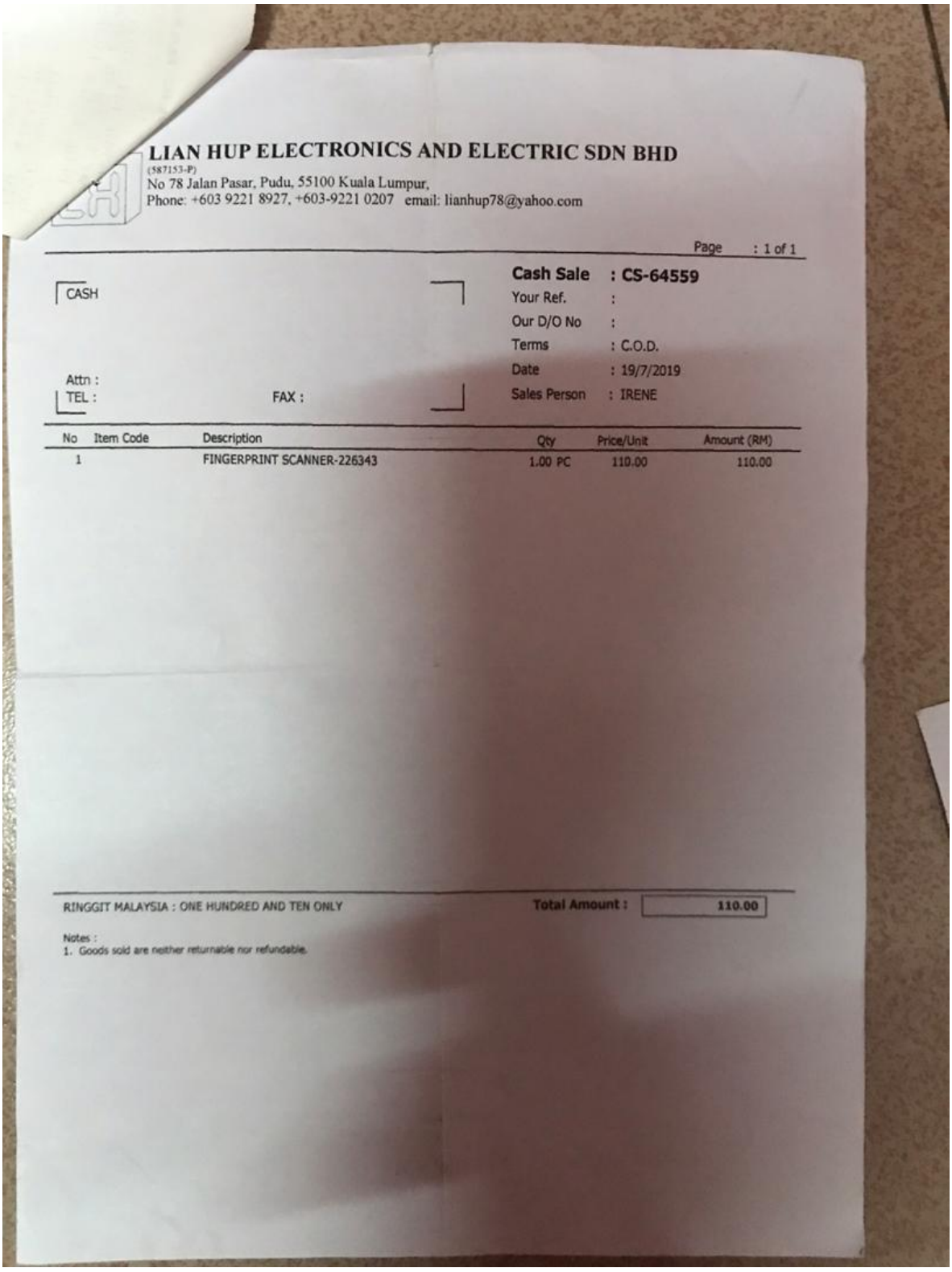
Total 95.00
Rounding Adj. 0.00

Final Total 95.00

CASH 95.00
CHANGE 0.00

INV NO: CS-203601 Date : 07/10/2019

Payment Method : CASH
Credit Card No. :



LIAN HUP ELECTRONICS AND ELECTRIC SDN BHD
(587153-P)
No 78 Jalan Pasar, Pudu, 55100 Kuala Lumpur,
Phone: +603 9221 8927, +603-9221 0207 email: lianhup78@yahoo.com

Page : 1 of 1

CASH

Cash Sale : CS-64559
Your Ref. :
Our D/O No :
Terms : C.O.D.
Date : 19/7/2019
Sales Person : IRENE

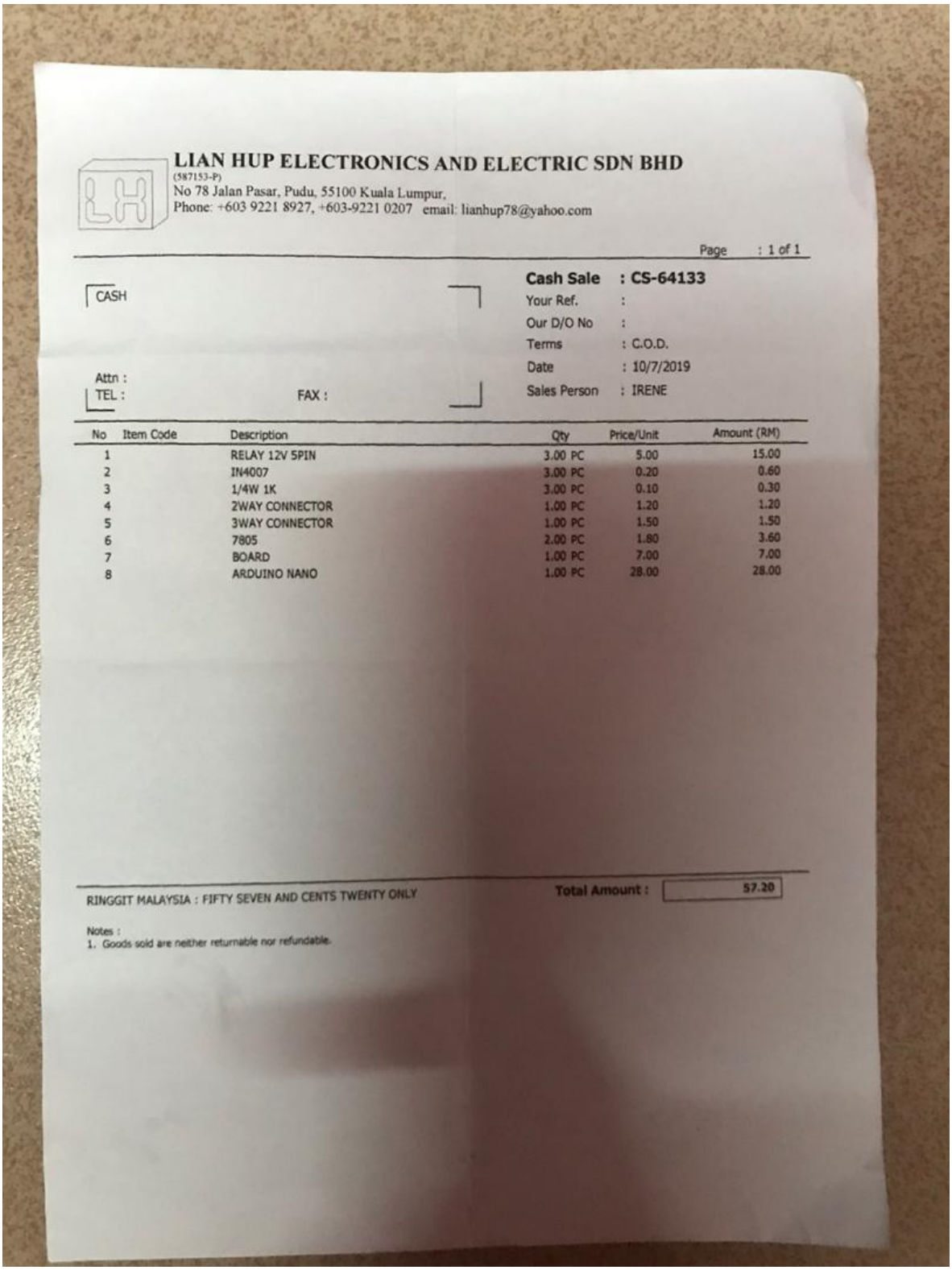
Attn :
TEL : FAX :

No	Item Code	Description	Qty	Price/Unit	Amount (RM)
1		FINGERPRINT SCANNER-226343	1.00 PC	110.00	110.00

RINGGIT MALAYSIA : ONE HUNDRED AND TEN ONLY

Total Amount : 110.00

Notes :
1. Goods sold are neither returnable nor refundable.



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Page : 1 of 1

CASH

Cash Sale : CS-64133
Your Ref. :
Our D/O No :
Terms : C.O.D.
Date : 10/7/2019
Sales Person : IRENE

Attn :
TEL : FAX :

No	Item Code	Description	Qty	Price/Unit	Amount (RM)
1		RELAY 12V 5PIN	3.00 PC	5.00	15.00
2		IN4007	3.00 PC	0.20	0.60
3		1/4W 1K	3.00 PC	0.10	0.30
4		2WAY CONNECTOR	1.00 PC	1.20	1.20
5		3WAY CONNECTOR	1.00 PC	1.50	1.50
6		7805	2.00 PC	1.80	3.60
7		BOARD	1.00 PC	7.00	7.00
8		ARDUINO NANO	1.00 PC	28.00	28.00

RINGGIT MALAYSIA : FIFTY SEVEN AND CENTS TWENTY ONLY

Total Amount : 57.20

Notes :
1. Goods sold are neither returnable nor refundable.