POLITEKNIK MALAYSIA

SULTAN SALAHUDDIN ABDUL AZIZ SHAH

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SYSTEM HYPER SHOE RACK

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JABATAN KEJURUTERAAN ELEKTRIK

DISEMBER 2022

SYSTEM HYPER SHOE RACK

NAME	REGISTRATION NO
MUHAMMAD SAHRIL BIN YASSIN	08DEP20F1047

This report submitted to the Electrical Engineering Department in fulfillment of the requirement for a Diploma in Electrical Engineering

JABATAN KEJURUTERAAN ELEKTRIK

DISEMBER 2022

CONFIRMATION OF THE PROJECT

The project report titled ‘System Hyper Shoe Rack has been submitted, reviewed and verified as a fulfills the conditions and requirements of the Project Writing as stipulated

Checked by:

Supervisor’s name : PUAN NADIAH BINTI DIN

Supervisor’s signature:

Date : 12 / 12 / 2022

Verified by:

Project Coordinator name :

Signature of Coordinator :

Date :

"I acknowledge this work is my own work except the excerpts I have already explained to our source"

1. Signature : SAHRIL

Name : **MUHAMMAD SAHRIL BIN YASSIN**

Registration Number : **08DEP20F1047**

Date : 12/ 12 / 2022

DECLARATION OF ORIGINALITY AND OWNERSHIP

TITLE : SYSTEM HYPER SHOE RACK

SESSION: SESI 1 2022/2023

1. I, **1. MUHAMMAD SAHRIL BIN YASSIN (08DEP20F1047)**

   is a final year student of **Diploma in Electrical Engineering, Department of Electrical, Politeknik Sultan Salahuddin Abdul Aziz Shah**, which is located at **Persiaran Usahawan, 40150 Shah Alam, Selangor**. (Hereinafter referred to as 'the Polytechnic').

2. I acknowledge that 'The Project above' and the intellectual property therein is the result of our original creation /creations without taking or impersonating any intellectual property from the other parties.

3. I agree to release the 'Project' intellectual property to 'The Polytechnics' to meet the requirements for awarding the **Diploma in Electrical Engineering** to me.

Made and in truth that is recognized by;

a) **MUHAMMAD SAHRIL BIN YASSIN**) .
(Identification card No: - 021001-06-0631) ....…….
) **MUHAMMAD SAHRIL BIN YASSIN**

In front of me, **PUAN NADIAH BINTI DIN**) .....……
(Click here to enter text.)) **NADIAH BINTI DIN**
As a project supervisor, on the date:

ACKNOWLEDGEMENTS

I have taken efforts in this Project. However, it would not have been possible without the kind support and help of many individuals and organizations. I would like to extend my sincere thanks to all of them. I am highly indebted to Supervisor Puan Nadiah and Puan Ilya for their guidance and constant supervision as well as for providing necessary information regarding the Project & also for their support in completing the Project.

I would like to express my gratitude towards my parents & member of DEP5C for their kind co-operation and encouragement which help me in completion of this Project. I would like to express my special gratitude and thanks to industry persons for giving me such attention and time.

My thanks and appreciations also go to my colleague in developing the Project and people who have willingly helped me out with their abilities. Last but not least, I want to thank me. I want to thank me for believing in me, I want to thank me for do all the hard work and I want to thank me for not quitting.

ABSTRACT

The Internet has evolved into an outstanding tool for online sellers. The problem is many online sellers have a problem in detect and keep the buyer's information. This problem is always happened to the live online seller. This problem happens because the seller did not have a good system for tracking buyers' orders and information. This also can make the deal between buyer and seller become skeptical. This problem led me to making a shopping system in digital platform. This system will have a secure transaction between customer and seller. This system also will automatically send the information to the LCD display using Arduino Uno when the order is confirmed and the payment is made. Infrared sensor is also used for make sure the rack of the shoe is full and ready to be sell. This way, the problem of losing customer information will be solved. This system also will use for prospect new accounts more efficiently, serve existing customers more effectively, and build more enduring business buyer relationships. The hardware for this project to success is Arduino Uno, Wi-Fi module infrared sensor and motor for the movement of the rack. The software is universal and can be use in any kind of hardware mainly by Arduino Uno and Wi-Fi module. The main point for this project is software and name for the software is Kaimono system. This project examines these practices and possibilities in detail while offering ways to facilitate and web usage using Arduino. Each phase in the selling process is addressed by QR code that will be given in the live selling, so buyers can use to further enhance their buying effectiveness. This project will be the solution for many online seller problems especially live seller who is always sell product that is highly demand in the public eye. This system will also increase internet utilization on individual selling efforts, This project is also recommend for further research for better version of this system.
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Keyword : Arduino Uno, Digital platform, Infrared sensor, Online , Internet

ABSTRAK

Internet telah berkembang menjadi alat yang luar biasa untuk penjual dalam talian. Masalahnya ialah ramai penjual dalam talian menghadapi masalah dalam mengesan dan menyimpan maklumat pembeli. Masalah ini selalu berlaku kepada penjual dalam talian secara langsung. Masalah ini berlaku kerana penjual tidak mempunyai sistem yang baik untuk menjejak pesanan dan maklumat pembeli. Ini juga boleh membuat perjanjian antara pembeli dan penjual menjadi ragu-ragu. Masalah ini menyebabkan saya membuat sistem penjualan dalam platform digital. Sistem ini akan mempunyai transaksi yang selamat antara pelanggan dan penjual. Sistem ini juga akan menghantar maklumat secara automatik ke paparan LCD menggunakan Arduino Uno apabila pesanan disahkan dan pembayaran dibuat. Sensor inframerah juga digunakan untuk memastikan rak kasut penuh dan sedia untuk dijual. Dengan cara ini, masalah kehilangan maklumat pelanggan akan dapat diselesaikan. Sistem ini juga akan digunakan untuk prospek akaun baharu dengan lebih cekap, memberi perkhidmatan kepada pelanggan sedia ada dengan lebih berkesan, dan membina hubungan pembeli perniagaan yang lebih berkekalan. Perkakasan untuk projek ini berjaya ialah Arduino Uno, sensor inframerah modul Wi-Fi dan motor untuk pergerakan rak. Perisian ini adalah universal dan boleh digunakan dalam sebarang jenis perkakasan terutamanya oleh Arduino Uno dan modul Wi-Fi. Perkara utama untuk projek ini ialah perisian dan nama bagi perisian tersebut ialah sistem Kaimono. Projek ini mengkaji amalan dan kemungkinan ini secara terperinci sambil menawarkan cara untuk memudahkan dan penggunaan web menggunakan Arduino. Setiap fasa dalam proses penjualan ditangani oleh kod QR yang akan diberikan dalam jualan langsung, jadi pembeli boleh menggunakan untuk meningkatkan lagi keberkesanan pembelian mereka. Projek ini akan menjadi penyelesaian kepada banyak masalah penjual dalam talian terutamanya penjual langsung yang sentiasa menjual produk yang sangat mendapat permintaan ramai. Sistem ini juga akan meningkatkan penggunaan internet pada usaha jualan individu, Projek ini juga disyorkan untuk kajian lanjut untuk versi sistem ini yang lebih baik.

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Keyword : Arduino Uno, Digital platform, Infrared sensor, Online , Internet

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CHAPTER 1

1.1 Introduction

My project is called Hyper Shoe Rack. This project contain a hardware and software. This project mainly focus on the software. The name for the software is Kaimono System. System is a collection of elements or components that are organized or plant itself and sometime describes the part in the system as in "computer system". This system is inspired from the famous Shopee. Shopee is widely considered as the largest e-commerce platform in Southeast Asia with 343 million monthly visitor, and the company also serves consumers and sellers throughout in several countries. As of 2019, the platform recorded 200 million download. In Malaysia, Shopee became the 3rd most visited e-commerce portal in Q4 2017 replacing Lelong and overtook Lazada to rank as the best app on both Google Play and IOS App stores. Shopee also took a big role when the pandemic happen on 2020.

The story of the Shopee make me inspired to do Kaimono System and combine it with Automatic Shoe Rack. The software Kaimono System is a website that is a shopping website with a security and catalogue that can be customized by the owner of the website. The hardware is an Automatic Shoe Rack. This contains Arduino Uno, Wi-Fi module, Infrared Sensor, LCD display and motor. The combination of hardware and the software is happen using Arduino Uno and Wi-Fi module. The data from the Kaimono system is be send to the Wi-Fi module that is connected to the Arduino Uno. Customer will scan the QR CODE that will be given in the Live Sell to purchase the item. The software will receive the order and send the information to the hardware and will be displayed on the LCD Display. This project willl solve the proplem of seller and customer from being scam and also solve the problem for seller who has problem on tracking customer order. This project will gave a huge help to the Live Seller for organize their orders and at the same time promote the product live with buyers.

1.2 Background Research

Online shopping is a new way in the world of retailing and future of ecommerce world definitely. Both single branded and multi branded companies are selling their products and services online. This increasing the growth has generated the idea to conduct this study. In this context, research paper explores three factors that influence consumer intentions to purchase shoes online. The study analyzes the perception of 150 online shoppers in Malaysia regarding convenience. Safety and price and their intention towards online shopping. A structured close ended questionnaire was administered to online shoppers. The collected data were analyzed in two stages. In first stages correlation was performed to analyze between online shopping features and consumer purchase intention whether it is retail or resell. The findings of this research shows that people prefer user friendliness and price provides economy that influenced directly the attitude towards purchase intentions towards purchase intentions of consumer to shop online.

This project also focus on Bundle Seller. This is because the phenomena bundle is trending in this era in Malaysia. We can see many bundle every country in Malaysia. The acceptance of society for this product is also give the biggest impact in Bundle community. Bundle is actually means a collection of things or quantity of material tied or wrapped up together. This bundle is pack with cloth, shoes and sometime backpack that is originated from oversea such as the US, Europe and Japan. This item is sold in bulk by foreign suppliers and purchased by suppliers in Malaysia for the local market. This inspire me to solve the main problem of the bundle seller that is selling second hand item without having any systematic way for tracking item and the risk getting scam buy the buyers. Kaimono System is the software that will have a great seller and buyer security

and this system also will send the buyers information after payment is made to the hardware that we connected to such as my hardware that Automatic Shoe Rack. The LCD display on the shoe rack will display the booking number so the seller can have a easy tracking for postage or walk in customer to pickup the item.

1.3 Problem Statement

Nowadays, there are many scams in online sales and purchases. Online seller also have difficulty tracking purchases and buyer information when conducting live sales. Buyers will also have trouble to give personal information when they buy items in live sales. Sellers will also have the problem of cheating buyers if they use the concept of "LOCK" in live sales.

Many seller will try to secure the booked product with the Sellotape that have buyers name. This method have a risk that the Sellotape will unplugged that will lead to misinformation and can cause losses. This method also need more time to buy and sell process to happen.

1.4 Research Objectives

1. To develop a system that can make it easier for users to buy shoes online without experiencing any problems
2. To build an automatic shoe rack with safety connection that will secure the shoe and display the information from software.

1.5 Scope of Research

The project focuses only on online bookings and online sellers. This project is at least have 30 buyer. This project is also focuses for teenager around 17-25 years old. The main controller is ARDUINO UNO

1.6 Project Significance

This project has a details process in every aspect that is known to make sure the project is completed within the time target. This project is been expect to be use in the Online shopping and mainly for the Online seller that have a problem in confirmation order and secure order. This project is to solve the problem of Online seller that have a difficulty for tracking purchases and buyer information when conducting live sales. The project software is targeted to be one of the most secure website for buyers that pay online. The combination of this project which is contain the hardware and the software will make a seller live easier because the received information from the software will be send to the hardware that will have the booking number then the seller only need the tracking number to check the order without worrying losing track of purchases and customer information.

CHAPTER 2

LITERATURE REVIEW

A literature review is the writing process of summarizing, synthesizing and critiquing the literature found as a result of a literature search. It may be used as a background or context for a primary research project. The objective of this review is to inform the audience of the development in field. Another objective is to establish my credibility. This literature review is also for discuss the relevance and significance of this project and then to provide the context for methodological approach. Last but not least , the objective of this literature review is to discuss the relevance and appropriateness of this project in community in this country.

2.1 Introduction

A literature review also focuses on the knowledge and ideas established on a topic as well as their strengths and weakness. Nowadays, technology is getting better and better to replacing the traditional system to speed up the process by introducing the computerized system. Before I start Hyper Shoe rack project, I have to analysis and choose the need of the project such as program and circuits that I should use for this project. Besides, the physical prototype also need to be test before the real one is been made. This is a save process to avoid damage to this project

2.2 LITERATURE REVIEW TOPIC 1

Shopee online has become increasingly popular among consumers for purchasing purposes as compared to brick-and-mortar retail due to the benefits and enjoyment that come with it. However, Shopee has facing intense competitive challenges with other competitors in Malaysia. In addition, it is also difficult for Shopee to compete with major leader of online shopping portal although this platform offers the same function and usage as its contender. Hence, it is important to understand consumer perceptions on the benefit and intention of using Shopee. This study examines consumer perceived usefulness, perceived ease of use, perceived price, perceived convenience and perceived trust adapted from the Technology Acceptance Model (TAM). 208 respondents who have experience online purchasing in East Cost of Malaysia were invited to participate in this study using online survey. Data were analyzed using descriptive, correlation and multiple regression analyses. The findings show that perceived convenience and perceived trust have strong influence towards consumer intention to use Shopee as platform to do online purchase. It is suggested that this study will help practitioners to understand consumer online shopping perception and intention in order to induce visitation and usage of Shopee. Inspired from Shoppe, I will make a slightly different change from Shopee which is my website is can connected to the hardware for automatic system

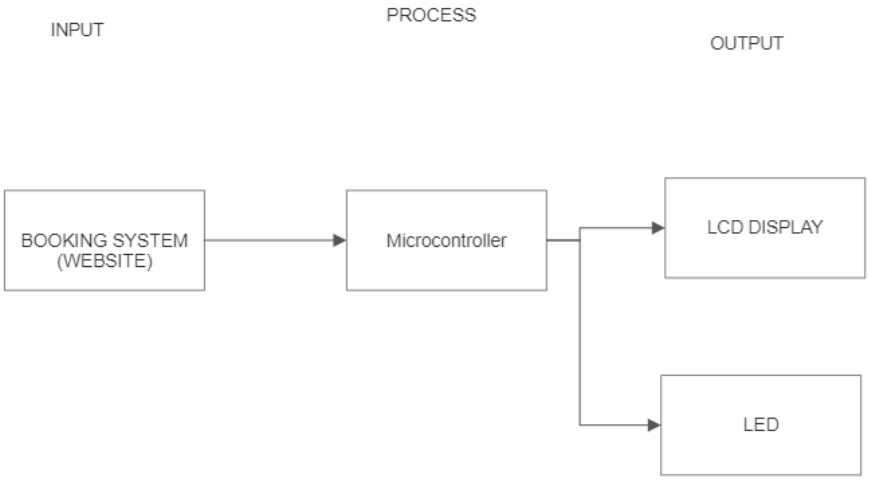
CHAPTER 3

RESEARCH METHODOLOGY

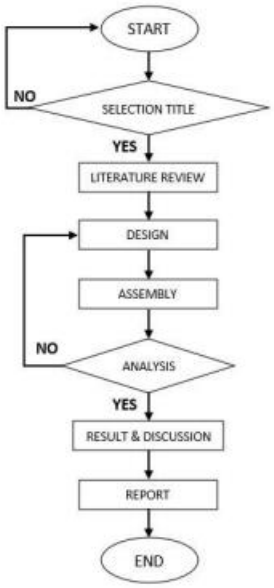
3.1 Introduction

Methodology is a method and technique for designing, collection and analyzing data to produce evidence that can support a research. Methodology describes how a problem being research can be solved with the best method. The methodology aims to help you better the application of the method by describing the process of the research. Methodologies can also be a reference to a group the implementation of the project that they want to do. A methodology is also required to update the progress the project. With the methodology, implementation of the project will be more organized and can be complete in a timely manner. Project supervisor will also be aware of the work done by the students in completing the project. In this methodology, there is a more in-depth description of the use of material used to carry out project. Also included are the operating procedures of the work and the procedures used to carry out the project. This methodology is important for every project implementation or improvement of an existing project in the market

3.2 Block Diagram of the Project



3.3 Flowchart of the Project 2

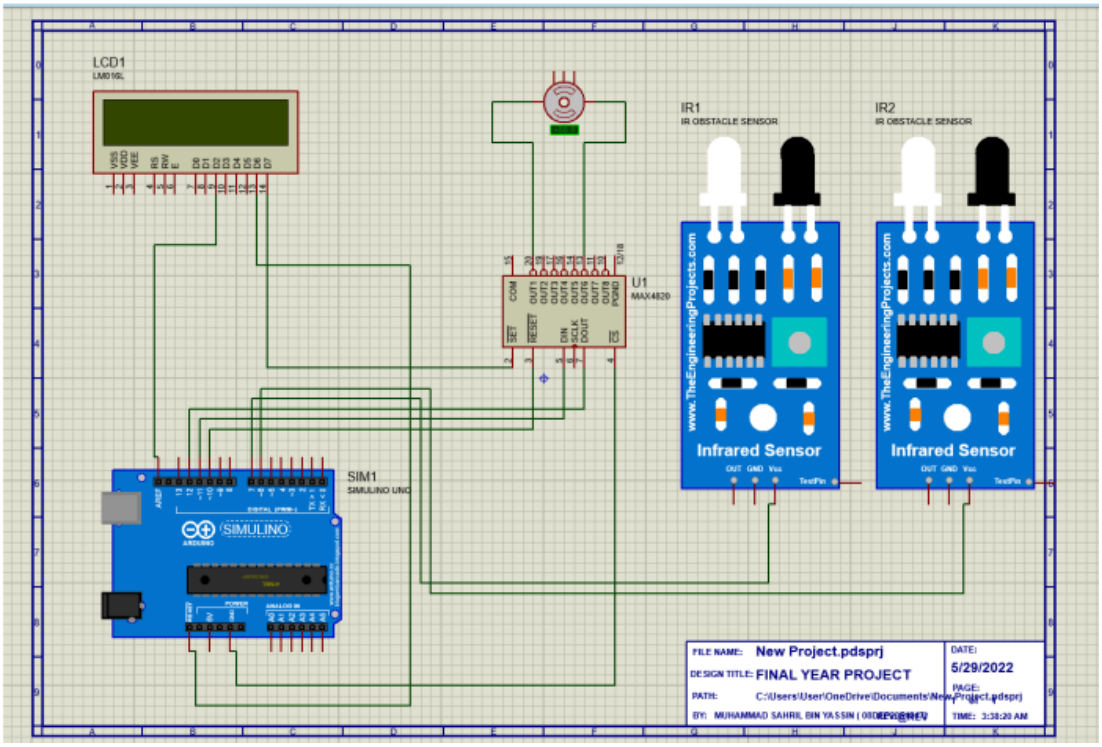


3.3.1 Project Description

The Arduino is receiving information from website. The information will appear on LCD display at the hardware. The Arduino will receive information using a wifi connection between the pc which has control over the system.

3.4 Project Hardware

3.4.1 Schematic Circuit



3.5 Prototype

3.6 Description of Main Component

3.6.1.1 Component 1
INFRARED SENSOR

An infrared sensor (IR sensor) is a radiation-sensitive optoelectronic component with a spectral sensitivity in the infrared wavelength range 780 nm-50 µm. IR sensors are now widely used in motion detectors, which are used in building services to switch on lamps or in alarm systems to detect unwelcome guests

3.6.1.2 Component 2
ARDUINO UNO R3

Arduino UNO is a microcontroller board based on the ATmega328P. It has 14 digital input/output pins (of which 6 can be used as PWM outputs), 6 analog inputs, a 16 MHz ceramic resonator, a USB connection, a power jack, an ICSP header and a reset button. It contains everything needed to support the microcontroller; simply connect it to a computer with a USB cable or power it with a AC-to-DC adapter or battery to get started. You can tinker with your UNO without worrying too much about doing something wrong, worst case scenario you can replace the chip for a few dollars and start over again.(markespace)(2017)[14]

3.6.1.3 Component 3

DC MOTOR

A DC motor is any of a class of rotary electrical motor that converts direct current (DC) electrical energy into mechanical energy. The most common types rely on the forces produced by magnetic fields. Nearly all types of DC motors have some internal mechanism, either electromechanical or electronic, to periodically change the direction of current in part of the motor.

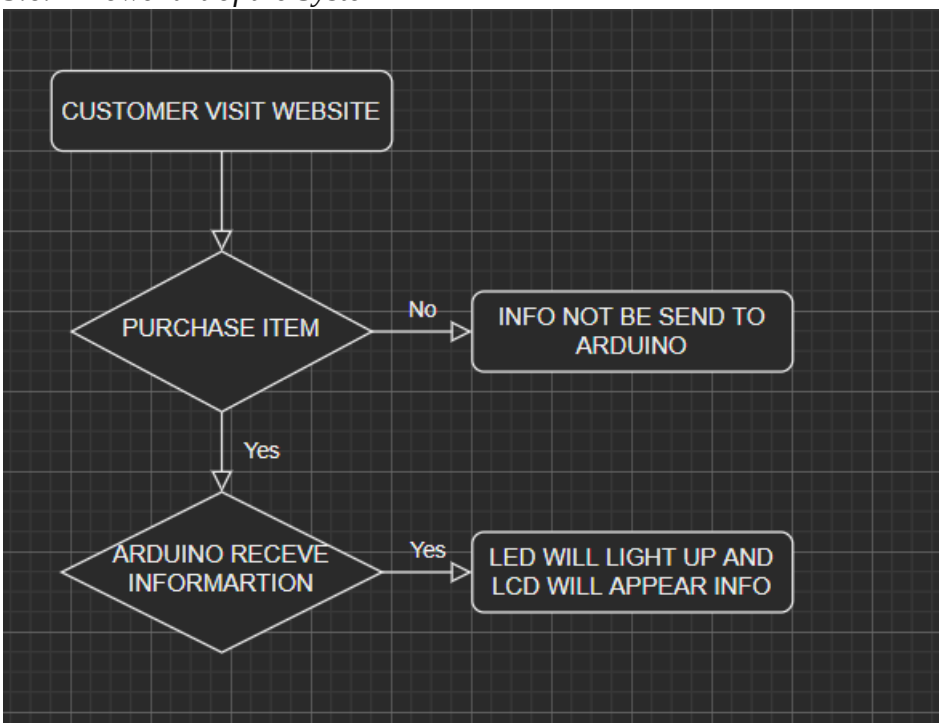
3.6.2 Circuit Operation

3.7 Project Software

PROTEUS 8 PROFESSIONAL

Proteus 8 Professional is a software which can be used to draw schematics, PCB layout, code and even simulate the schematic. It is developed by Labcenter Electronic Ltd

3.6.1 Flowchart of the System



3.7.2 Description of Flowchart

Link will be given when live sale is on. Firstly customer will visit website for purchasing item. If purchase is successful the customer tracking information will be send to Arduino . If the purchase is fail the information will not be send to the Arduino. When the Arduino is receive the information, the led will light up and LCD display will show the tracking number for the product.

CHAPTER 4

4.1 Introduction

From the result that we were obtained, we can observed that from the Figure 4.2.1 are one of the evidence that not all people liking a bundle shoes. This is because the bundle shoes is a used item but in a good conditions. At the same figure, we also can see that 46.7% people who like bundle shoes. Some people buy shoes for a specific occasion, that's why they need a new pair of shoes while some people maybe just want to dress up and looking good without spending so much money on a new pair of shoes. This survey also become the proof that people more likely to like shoes if the shoes is well shown. At Figure 4.2.2 , we can see that people know the value will get higher if their using a proper shoe box to store the shoes. Then at Figure 4.2.3, we can see 53.3% people is liking a automatic shoe rack than normal shoe rack. It because the automatic shoe rack is more displayable especially for shoes collector who just want to display the shoes and rarely wear it. Last but not least, we can see from figure 4.2.6, people are having a better trust in a website which has a better security in payment , a good tracking order and systematic system rather than "Lock " on the live chat when live seller is happening.

4.2 Result and Analysis

4.2.1 Survey Content

A survey regarding people taste in shoes and the automatic shoe rack. This survey include 6 question with a choice of answer.

Question 1 ask about people type in buying a shoes whether a new shoes or a bundle shoes. Question 2 ask people opinion about having a nice box that will increase the value of the bundle shoes.

Question 3 is asking people opinion about having a automatic shoe rack or a regular shoe rack.

Question 4 is asking people their choice of buying shoes whether Online or Face to Face. Question 5 is asking people about where they will buy shoes whether Live Seller(Bundle) or ready stock item(new).

Question 6 is asking people about method that will increase their trust in shopping. Got two option which is Website and "Lock" on the live chat.

Question 1

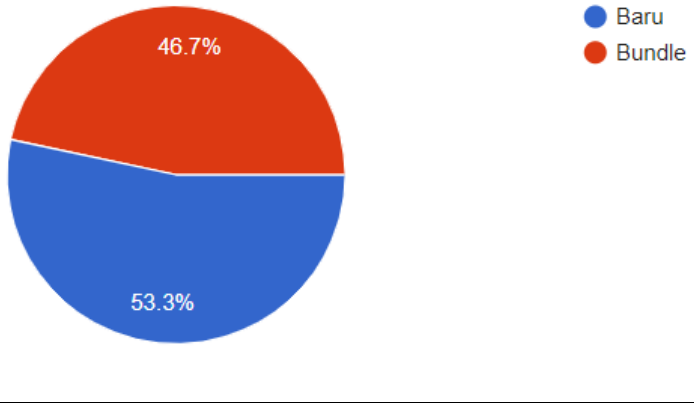


FIGURE 4.2.1.1

As we can see from Figure 1.0, out of 20 individuals who respond the survey, 53.3% are choosing a new shoes and 46.7% choosing a bundle shoes.

Question 2

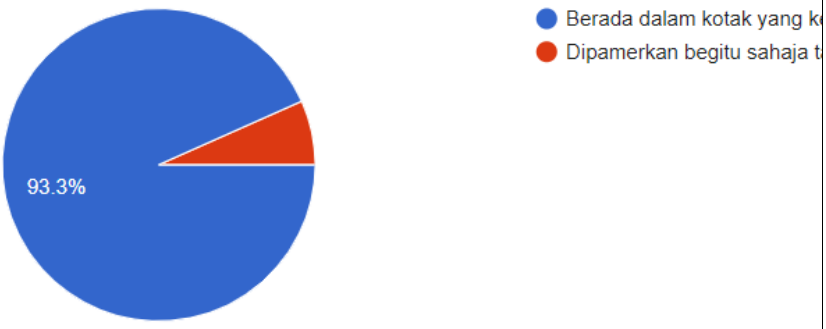


FIGURE 4.2.1.2

The second question can be refer to the Figure 1.1. 93.3% respondent is choosing to have a bundle shoes in a Neat and Nice box of shoes.

Question 3

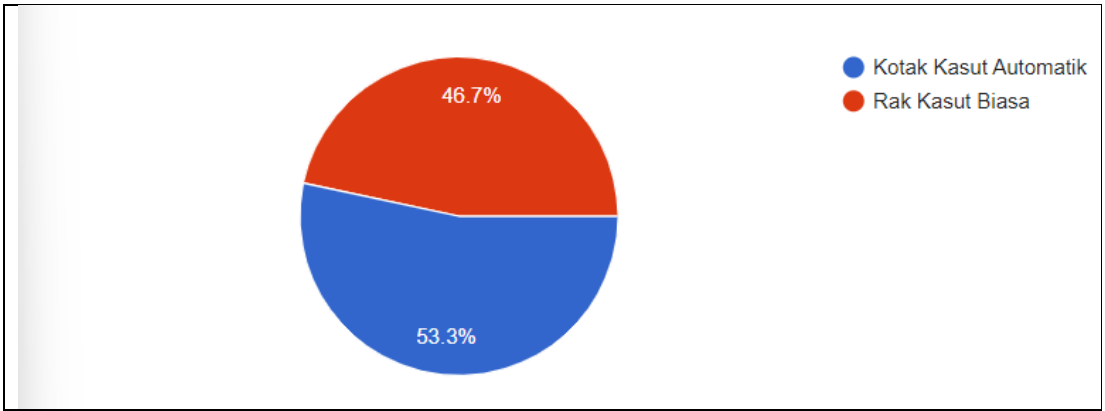


FIGURE 4.2.1.3

The third question is asking about the automatic shoe rack and normal shoe rack. 53.3% is choosing a Automatic Shoe rack and 46.7% is choosing a normal shoe rack.

Question 4

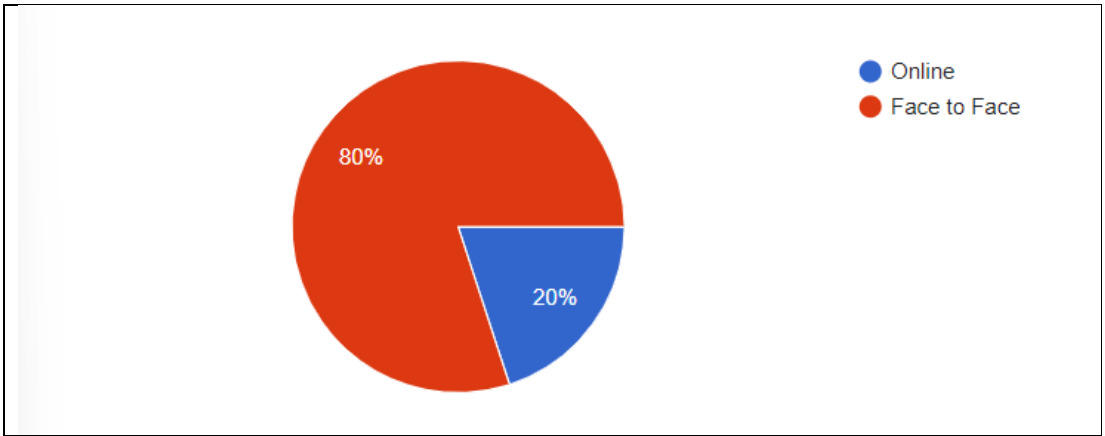


FIGURE 4.2.1.4

16 people or 80% is choosing to buy a shoes Face to Face. Only 4 people or 20% is interested in buying online.

Question 5

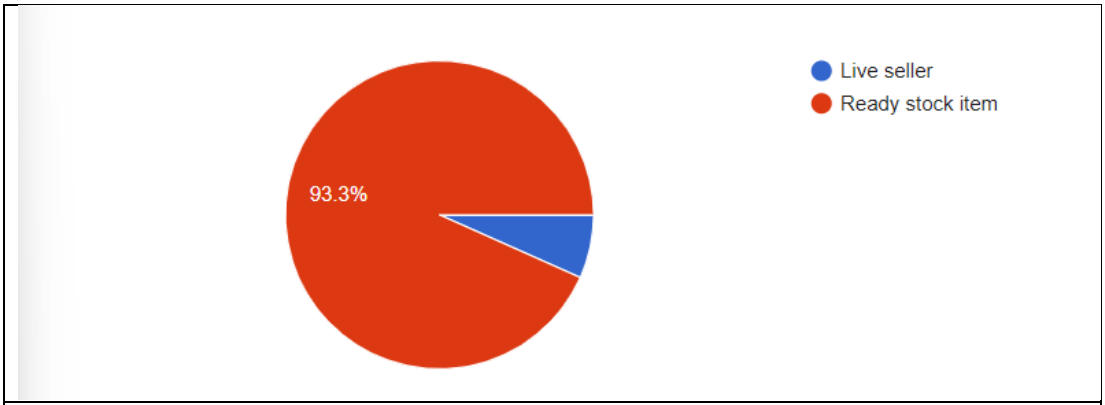


FIGURE 4.2.1.5

93.3% respondent is choosing to buy a ready stock item. It probably because the live seller always take a long time in introducing their product.

Question 6

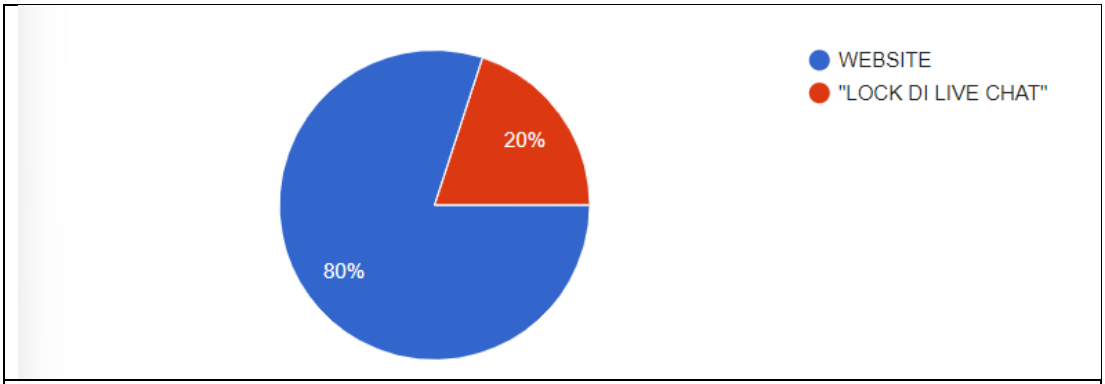


FIGURE 4.2.1.6

The last question is the method that people trust. 80% of the respondent is choosing a website which has a secure payment and systematic ordering system. Only 20% is interested to “LOCK” item on live chat when Live Seller is live.

4.3 Discussion

In this chapter, we should be found that whether people still choosing bundle shoes over new shoes. From the google form we can see that, over 16 people who answer the form, it is evenly divided for both new and bundle. This is because, there are type of people that prefer to have a good looking shoes at cheap price. This is also maybe because the trending of people wearing a shoes that been in the market old time ago. In this form, we also understand that the presentation of shoes is also important to attract people. That's why we need an automatic shoe rack for bundle seller to improve the price of the used items.

CHAPTER 5

5.1 Introduction

From this project I successfully make an automatic shoe rack. This project which is contain 2 main part which is software and hardware. This project take a lot of time and effort . The result that I get from this project is quite interesting. The result is esp8266 is a another board that need to have separate coding with Arduino Uno. This make a coding process much more harder that it though. Although facing this problem, the automatic shoe rack is successful hardware but a weakness is shown within the software. This project also teach me how to be patience with every single component and coding to have a perfect project. This project also teach me that human prefer shoes with their own price range rather than buying a pricey item. This project also be quite example of how the expectation is not always the same with the reality.

5.2 Conclusion

From this project, we can conclude that in order to make something happen, we need to prepare for the worst. This project that contain two main board which is Arduino Uno and ESP8266 is quite a hassle to deal with. The project is not good as it should be because the failure in combining both of the main board. Technically it is possible to do that but lack of focus make it did not happen. This project result is the automatic shoe rack is a successful hardware and for the software, the website is a good example of how to do a good shopping website . From this project, I learn Python Language just to make a good website but it surely take time to master it. The website is quite good despite the amount of time that I have. This project also teach me that Arduino Uno have a many function depending how we type our coding. The infrared sensor, LCD Display , The motor and everything else was an easy task but for the combining

two board together, it take a real hard work and real effort to make it happen. Last but not least, the hardware is quite a good hardware meanwhile for the software we needed some improvement in it.

5.3 Suggestion For Future Work

My suggestion for the next work is obviously to improve the software. Make a website that is legally can accept payment and connect with online banking even though is just a final year project. The hardware can be improve with make it portable to use it at another shoe rack or another household item . This also can make the sale of this product be quite reasonable to buy and use it for every one and not just bundle seller. This project also can be a quite good display item for collector around the world. Improve the system using another board than ESP8266 and make it smaller and portable so people can use it anywhere.

CHAPTER 6 Project Management and Costing

6.1 Introduction

In this chapter, it will cover all the expenses that have been spend from scratch and become a full project. It will also tell all the detail about the price component, where I usually buy it and also the full cost of this project.

6.2 Gant Chart.

NAME		Muhammad Sahril Bin Yassin
MATRIX NO		08DEP20F1047
TITLE PROJECT		Hyper Shoes Rack
		Task(Plan)
		Task(Actual)

POLITEKNIK MALAYSIA
SULTAN SALAHUDDIN ABDUL AZIZ SHAH

GANTT CHART

PROJECT TITLE : HYPER SHOE RACK

Course	NO	Task Name	Implementation	Duration (Days)	Week 1 (22.08.2022- 28.08.2022)	Week 2 (29.08.2022 - 04.09.2022)	Week 3 (05.09.2022 - 11.09.2022)	Week 4 (12.09.2022 - 18.09.2022)	Week 5 (19.09.2022 - 25.09.2022)	Week 6 (26.09.2022 - 02.10.2022)	Week 7 (03.10.2022 - 09.10.2022)	Week 8 (10.10.2022 - 16.10.2022)	Week 9 (17.10.2022 - 23.10.2022)	Week 10 (31.10.2022 - 06.11.2022)	Week 11 (07.11.2022 - 13.11.2022)	Week 12 (14.11.2022 - 20.11.2022)	Week 13 (21.11.2022 - 27.11.2022)	Week 14 (28.11.2022 - 04.12.2022)
DEE50102			RESEARCH	Plan														
				Actual														
	1	DISCUSSION AND GUIDANCE	Plan	98														
			Actual	91														
	2	BUILD THE MODEL	Plan	56														
			Actual	63														
	3	TESTING AND TROUBLESHOOTING	Plan	21														
			Actual	28														
	4	IMPROVING THE PROJECT	Plan	7														
			Actual	14														
	5	PROJECT PRESENTATION	Plan	14														
			Actual	7														
	6	SUBMIT LOGBOOK	Plan	7														
			Actual	14														
	7	SUBMIT FINAL REPORT	Plan	7														
			Actual	14														

6.3 Cost and Budgeting

NO	Component and material	The Unit Price	Quantity	Total
1.	Box Model 1st	RM3.49	2	RM11.48
2.	ESP8266	RM10.36	1	RM14.86
3.	4 Relay Channel	RM 11.90	1	RM16.40
4.	Arduino Uno R3 full set	RM89.90	1	RM89.40
5.	Veroboard Stripboard	RM2.90	4	RM18.50
6.	Infrared Sensor	RM2.90	2	RM10.70
7.	12V DC MOTOR	RM 17.90	1	RM22.80
8.	JUMPER CABLE	RM8	5	RM40
9.	POWER SUPPLY	RM50	1	RM50
10.	Box Model Latest	RM30	1	RM30
11.	Box for wiring	RM10	1	RM10
			TOTAL	RM314.26

The majority of the component is from shoppe but got a few item such as Power supply and jumper cable form electronic shop at Seremban, Negeri Sembilan.

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