

POLITEKNIK SULTAN SALAHUDDIN ABDUL AZIZ SHAH

DOOR LOCK SYSTEM USING ARDUINO UNO

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08DEP20F2027

JABATAN KEJURUTERAAN ELEKTRIK

SESI 2 2022/2023

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

JABATAN KEJURUTERAAN ELEKTRIK

SESI 2 2022/2023

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

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DECLARATION OF ORIGINALITY AND OWNERSHIP

TITLE : Door lock system using Arduino uno

SESSION: DECEMBER 2023

1. I, **1. Click here to enter text.**

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,40140 Shah Alam Selangor Darul Ehsan**. (Hereinafter referred to as 'the Polytechnic').

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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) **AMMAR MUHAIMEEN BIN)**
KAMARULZAMAN)
(Identification card No: - 020908101513) **AMMAR MUHAIMEEN BIN KAMARULZAMAN**

In front of me, **ENCIK YAAKUB BIN OMAR)**
(Click here to enter text.) **ENCIK YAAKUB BIN)**
As a project supervisor, on the date: **OMAR**

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 (Name of your Organization Guide) 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 (Organization Name) 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.

ABSTRACT

In this system, the electronic door lock using RFID and password based on Arduino UNO. It uses in doors and cupboards as electronic lock and so on. The security system is important at homes, schools, offices and industries in real life. The purpose of this paper is to develop a smart home security system using RFID and keypad. RFID is ID card reader to read ID card's value and Arduino UNO. If ID card reader is true, Arduino permits to press password on keypad. If password is true, lock style solenoid is unlocked. If password is false, solenoid is lock. The electronic door lock system for home automation is able to interact with security management system for users and smart cards. Smart card is easy to use and accept more secure in real life. And then password is traditional but that is more impressive and more secure for human life. The Arduino microcontroller is used to control the whole system.

For every household, security is one of the main concerns. In this age of constantly increasing count of crime, various attempts have been made to secure the entrance and control the accessibility of the household. Traditional mechanisms such as lock and key, Deadbolts, Door chain and Mortise locks; they all have their limitations. Some of them are heavy in weight but fragile. Some others are more of an inconvenience than being a thing of actual benefits. This paper proposes a RFID-based secure door lock system and tries to draw upon its various advantages over traditional door security systems. Radio frequency identification (RFID) is a wireless technology that allows the development of scalable control systems with flexibility. The goal of this work is to develop a system in which ease of use comes together with better security but without any extra cost.

ABSTRAK

Dalam sistem ini, kunci pintu elektronik menggunakan RFID dan kata laluan berdasarkan Arduino UNO. Ia menggunakan dalam pintu dan almari sebagai kunci elektronik dan sebagainya. Sistem keselamatan adalah penting di rumah, sekolah, pejabat dan industri dalam kehidupan sebenar. Tujuan kertas kerja ini adalah untuk membangunkan sistem keselamatan rumah pintar menggunakan RFID dan papan kekunci. RFID ialah pembaca kad ID untuk membaca nilai kad ID dan Arduino UNO. Jika pembaca kad ID adalah benar, Arduino membenarkan untuk menekan kata laluan pada pad kekunci. Jika kata laluan adalah benar, solenoid gaya kunci dibuka. Jika kata laluan palsu, solenoid dikunci. Sistem kunci pintu elektronik untuk automasi rumah mampu berinteraksi dengan sistem pengurusan keselamatan untuk pengguna dan kad pintar. Kad pintar mudah digunakan dan diterima dengan lebih selamat dalam kehidupan sebenar. Dan kemudian kata laluan adalah tradisional tetapi itu lebih mengagumkan dan lebih selamat untuk kehidupan manusia. Mikropengawal Arduino digunakan untuk mengawal keseluruhan sistem.

Bagi setiap isi rumah, keselamatan adalah salah satu kebimbangan utama. Dalam zaman yang semakin meningkat bilangan jenayah ini, pelbagai percubaan telah dilakukan untuk memastikan pintu masuk dan mengawal kebolehcapaian isi rumah. Mekanisme tradisional seperti kunci dan kunci, Deadbolts, Rantai pintu dan kunci Mortise; mereka semua ada batasannya. Sebahagian daripadanya berat tetapi rapuh. Sesetengah yang lain lebih menyusahkan daripada menjadi perkara yang memberi manfaat sebenar. Makalah ini mencadangkan sistem kunci pintu selamat berasaskan RFID dan cuba memanfaatkan pelbagai kelebihan berbanding sistem keselamatan pintu tradisional. Pengenalan frekuensi radio (RFID) ialah teknologi tanpa wayar yang membolehkan pembangunan sistem kawalan berskala dengan fleksibiliti. Matlamat kerja ini adalah untuk membangunkan sistem di mana kemudahan penggunaan digabungkan dengan keselamatan yang lebih baik tetapi tanpa sebarang kos tambahan.

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CHAPTER 5

RESULTS, DISCUSSION & CONCLUSION

5.1 Introduction
5.2 Results
5.3 Discussion
5.4 Conclusion

CHAPTER 1

INTRODUCTION

1.1 Introduction

Nowadays, many different technologies are used to the electronic door lock using RFID and password based on Arduino UNO. The main processes of this paper are checking ID card and password. If all state are true after checking, solenoid is unlocked. If ID card is true, yellow LED is ON, that is permit to press password on keypad, if both ID card and password are true green LED is ON and solenoid unlock. If ID card is false, red LED is ON and solenoid is locked. When pressed keypad of * and # key, solenoid was changed unlock state to lock state. MFRC522 reader module is used to build a test circuit, to open and close a lock. Use a master key card to add or remove access to different tags, and create a simple LED read out to talk about the system. Finally, a solenoid acts as the lock, and a MOSFET to safely trigger it ON and OFF using Arduino. RFID door lock mechanism in some hotels and other places, where no need a key to unlock the room. ID card needs to put it in front of a RFID reader box and the lock gets unlocked with a blink of LED. This RFID door lock made easily at home and can install it in any door. This door lock is just electrically operating door lock which gets open when apply some voltage to it. It can be approached by software only, hardware only or the combination of software and hardware. Automated assimilation and access control system has turned out to be important to defeat the security dangers looked by numerous organizations. This is a time where everything is associated with the system, where anybody can get hold of data from anyplace around the globe. Therefore, hacking of one's information is a major issue. Because of these dangers, it is imperative to have some sort of personal identification (ID) to get to one's own particular information. Different systems are introduced at various points to track the individual's movement and to confine their entrance to touchy zones in the secured area. Among standard individual ID strategies, password and ID card methods are the most observed methods. However, it is not very difficult to hack secret password now and recognizable ID cards may get lost, hence making these techniques very questionable [1]. Again, Radio frequency identification (RFID) is a remote innovation that can be utilized to evolve the entrance control system. This technology provides a revolutionary automation in various processes ranging from industrial sectors to home control [2-3]. In RFID technology, the identification of an object automatically consists of the object, location of the object or individual with a special identifier code contained with an RFID tag, which is somehow connected to or implanted in the target [4]. Because of the shaky wireless channel between RFID tag and RFID reader, security dangers against RFID system have been showing up. Numerous RFID verification conventions against the security dangers

1.2 Background Research

In this chapter we will briefly describe the embedded platform that we will use and we will introduce some of the concepts that are useful to understand the rest of this thesis. This chapter will also describe some of the related work that is relevant to this thesis project. Some previous research has been done that is related to our project. We will summarize these related projects in this section. This is particularly the case for our basic platform, as we will re-use the microcontroller and PoE network circuit board developed by earlier master's thesis students at this department. Following this we will introduce some of the related work done regarding door locks, access control, and cloud-based services.

1.3 Problem Statement

This RFID DOOR LOCK ACCESS CONTROL can solve many problems. One of them is to be able to save time, when using a key and the movement will be slower and waste a lot of time to open the lock or handle, in terms of security it will be more guaranteed because when robbers or looters want to commit a crime, security will be more guaranteed because the door can open faster and faster to enter the door.

1.4 Research Objectives

RFID locker locks offer convenient installation, as the tag card is easy to use and more convenient to carry around compared to keys. RFID locker lock keycards can be carried in your wallet or clipped to your shirt. Unlike magnetic stripe cards, the RFID keycards do not need to make physical contact with the locker locks. One only has to come close enough to the reader to trigger the system and unlock the door. This feature is quite useful, especially when a person is carrying

a number of boxes or luggage.

While magnetic stripe locks can only be opened by using a key card, RFID locker locks can be opened not only by a card but also through mobiles. As the RFID uses wireless technology to trigger the lock system, Bluetooth Low Energy (BLE) technology can also be used to access the locks. Therefore, if you find carrying a key card cumbersome, you can register your smartphone as the key and open RFID locker locks easily using your phone. Many organizations these days install RFID locker locks and RFID Mobile Access Locks to ensure enhanced safety and security of the employees and the establishment as a whole.

Keys might often be misplaced or lost by individuals. Keycards are less likely to of getting lost, damaged, or stolen. Even if a person loses a keycard, it is much easier, cheaper, and faster to create a new one than replacing a lost key. Moreover, RFID locks with mobile access can be opened by a smartphone, eliminating the need for a key card as well.

1.5 Scope of Research

1. This Project is focusing safety door lock
2. The emphasis is to those who are always careless
3. The main controller is using ARDUINO UNO

1.6 Chapter Summary

In this system is designed with the electronic door lock using FID and password based on Arduino UNO. Electronic lock systems are preferable over mechanical locks, to resolve the security problems that are associated with the mechanical locks. An electronic door lock system for home automation was developed in this paper. Arduino microcontroller is used as a main controller. Arduino is amazingly useful device. They are used for a wide range of application. Arduino needs other components for receiving and sending data must be added to it. Arduino is designed to be all of that on it and it is used for the more cost effective in education and industrial applications.

CHAPTER 2

LITERATURE REVIEW

2.1 Introduction

Nowadays, many different technologies are used to the electronic door lock using RFID and password based on Arduino UNO. The main processes of this paper are checking ID card and password. If all state is true after checking, solenoid is unlocked. If ID card is true, yellow LED is ON, that is permit to press password on keypad, if both ID card and password are true green LED is ON and solenoid unlock. If ID card is false, red LED is ON and solenoid is locked. When pressed keypad of * and # key, solenoid was changed unlock state to lock state. MFRC522 reader module is used to build a test circuit, to open and close a lock. Use a master key card to add or remove access to different tags, and create a simple LED read out to talk about the system. Finally, a solenoid acts as the lock, and a MOSFET to safely trigger it ON and OFF using Arduino. RFID door lock mechanism in some hotels and other places, where no need a key to unlock the room. ID card needs to put it in front of a RFID reader box and the lock gets unlocked with a blink of LED. This RFID door lock made easily at home and can install it in any door. This door lock is just electrically operating door lock which gets open when apply some voltage to it. It can be approached by software only, hardware only or the combination of software and hardware.

2.2 Arduino uno

Arduino Uno is an open-source microcontroller board based on the Microchip ATmega328P microcontroller and developed by Arduino.cc and initially released in 2010.[2][3] The board is equipped with sets of digital and analog input/output (I/O) pins that may be interfaced to various expansion boards (shields) and other circuits.[1] The board has 14 digital I/O pins (six capable of PWM output), 6 analog I/O pins, and is programmable with the Arduino IDE (Integrated Development Environment), via a type B USB cable.[4] It can be powered by the USB cable or by an external 9-volt battery, though it accepts voltages between 7 and 20 volts. It is similar to the Arduino Nano and Leonardo.[5][6] The hardware reference design is distributed under a Creative Commons Attribution Share-Alike 2.5 license and is available on the Arduino website. Layout and production files for some versions of the hardware are also available

2.3 RFID

RFID (radio frequency identification) is a form of wireless communication that incorporates the use of electromagnetic or electrostatic coupling in the radio frequency portion of the electromagnetic spectrum to uniquely identify an object, animal or person. Every RFID system consists of three components: a scanning antenna, a transceiver and a transponder. When the scanning antenna and transceiver are combined, they are referred to as an RFID reader or interrogator. There are two types of RFID readers -- fixed readers and mobile readers. The RFID reader is a network-connected device that can be portable or permanently attached. It uses radio waves to transmit signals that activate the tag. Once activated, the tag sends a wave back to the antenna, where it is translated into data. The transponder is in the RFID tag itself. The read range for RFID tags varies based on factors including the type of tag, type of reader, RFID frequency and interference in the surrounding environment or from other RFID tags and readers. Tags that have a stronger power source also have a longer read range

CHAPTER 3

RESEARCH METHODOLOGY

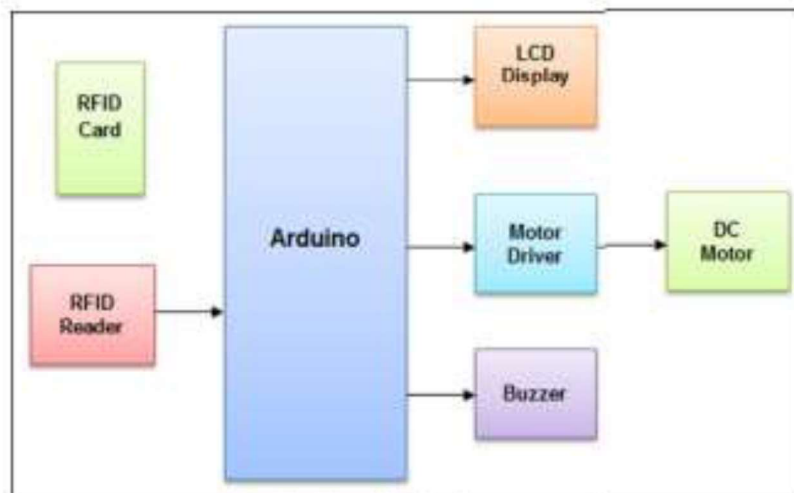
3.1 Introduction

Study methodology refers to the practical "how" of any given piece of research. It is largely concerned with how a researcher designs a study in order to obtain accurate and reliable data that address the research aims and objectives. A comprehensive approach is being taken to realise this project as a ready-to-use device with safety features. To ensure that the Project is completed on time, a step-by-step approach is used

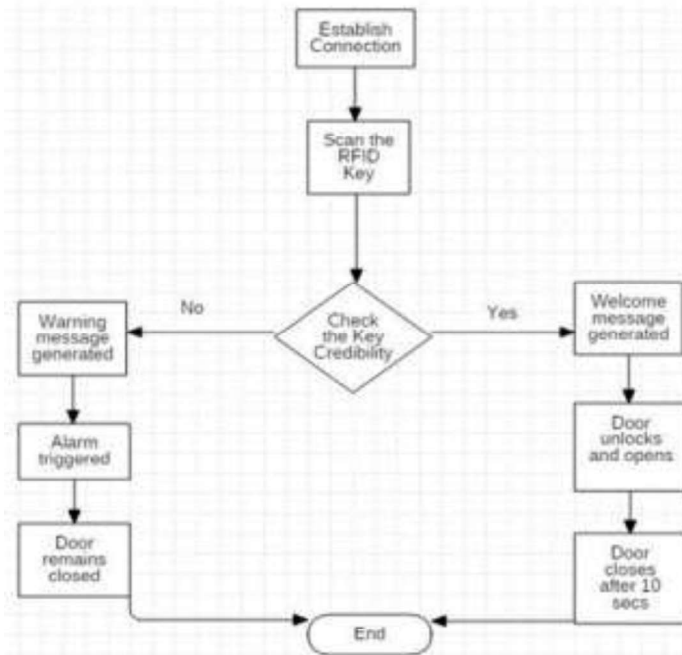
3.2 Project Design and Overview.

The designed controller, as mentioned in the previous chapter, employs a closedloop system using Arduino as the primary controller. The controller circuit is designed using Arduino with components such as wire jumper cable, adapter, RFID reader, and relay 2 channel, which is then realised using Proteus Software and converted to PCB circuit.

3.3Block Diagram of the Project



3.4 Flowchart of the Project 2



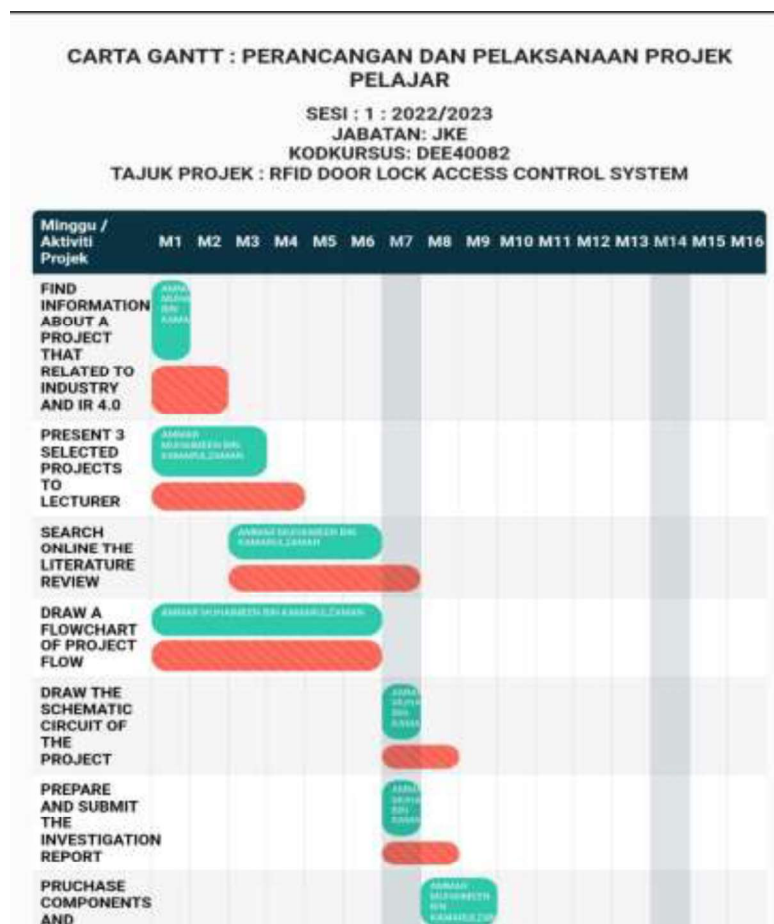
CHAPTER 4

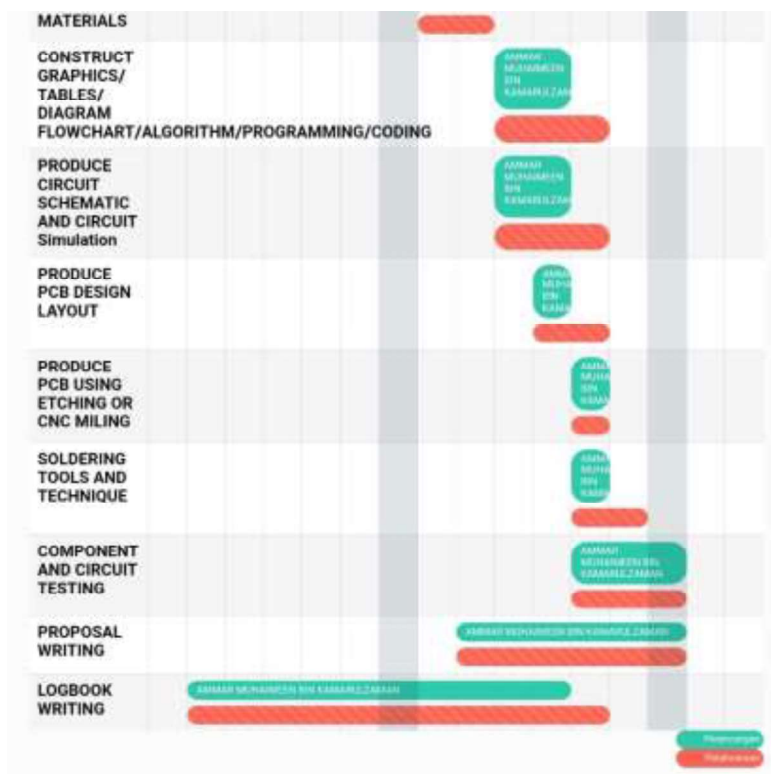
RESULTS AND DISCUSSION

4.1 Introduction

This chapter presents the project management and costing for overall project that were planned and is done after taking consideration of each values and aspects in order to fulfill all of the things needed for a successful project.

4.2 Results and Analysis (Gantt chart)





4.3 Discussion

RFID locker locks offer convenient installation, as the tag card is easy to use and more convenient to carry around compared to keys. RFID locker lock keycards can be carried in your wallet or clipped to your shirt. Unlike magnetic stripe cards, the RFID keycards do not need to make physical contact with the locker locks. One only has to come close enough to the reader to trigger the system and unlock the door. This feature is quite useful, especially when a person is carrying a number of boxes or luggage.

4.4 Chapter Summary

In this study, we have implemented a digital security system contains door lock system using passive RFID. A centralized system is being deployed for controlling and transaction operations. The door locking system functions in real time as when the user put the tag in contact with the reader, the door open and the check-in information is stored in central server along with basic information of the user. We utilize RFID technology to provide solution for secure access of a space while keeping record of the user.

4.5 Cost Estimation

No.	Component and materials	The unit price	Quantity	Total
1	Arduino UNO board	RM 50.00	1	RM 50.00
2	RFID module	RM 40.00	1	RM 40.00
3	jumper Wires	RM 20.00	40	RM 20.00
4	Foam board	RM 40.00	1	RM 40.00
5	LCD display	RM 30.00	1	RM 30.00
6	I2C module	RM 20.00	1	RM 20.00
7	Servo motor	RM 55.00	1	RM 55.00
8	Door lock	RM 10.00	1	RM 10,00
9	Iron stick	RM 10.00	1	RM 10,00
			Total :	RM 275.00

CHAPTER 5

CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

This chapter presents the results obtained from the data analysis which has been made through several questionnaire where testimony is given to both users and Industrial. Apart from that, the whole process of collecting and analyzing data is discussed properly in order to fully understand the problem occurred and how it is solved for a successful project and lastly this chapter will conclude all parts of the project.

5.2 RECOMMENDATION

RFID receiver has eight connector pins that are SDA, SCK, MOSI, MISO, RQ, GND, RST and VCC. SDA to Arduino pin 10, SCK to Arduino pin 13, MOSI to Arduino pin 11, MISO to Arduino pin 12, RQ is not used, GND is Arduino GND, RST is Arduino pin 9 and VCC is Arduino 3.3V pin. RFID receiver work to receive data from RFID tags. And then, Arduino will check that tag data. If these tags are correct, Arduino accept to press keypad and yellow LED is ON and tags are not correct red LED is ON and Arduino is not accepted to press keypad. The keypad has eight I/O pins and that are R1, R2, R3, R4, C1, C2, C3 and C4. R1 is Arduino A0, R2 is Arduino A1, R3 is Arduino A2, R4 is Arduino A3, C1 is Arduino A4, C2 is Arduino A5, C3 is Arduino pin 3 and C4 is Arduino pin 2. If RFID tags are correct and Arduino is allowed to press keypad. This paper is door password and activate key is # and clear password key is *. When user wants to close the door, presses * and #. If keypad password is correct, green LED is ON and Arduino pin 8 is HIGH, so electric current pass from Arduino pin to resistor 10k Ω and transistor's Tip 122 base pin. And then, the transistor permitted current from collector to emitter so the solenoid lock hardware is drive.

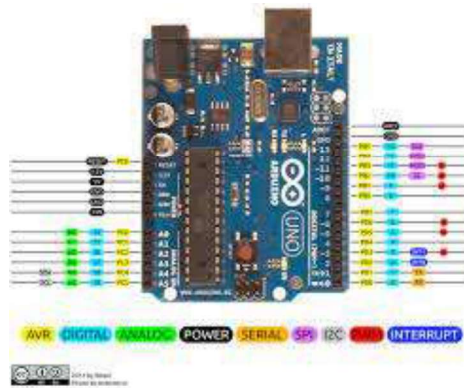
5.3 Conclusion

In this system is designed with the electronic door lock using RFID and password based on Arduino UNO. Electronic lock systems are preferable over mechanical locks, to resolve the security problems that are associated with the mechanical locks. An electronic door lock system for home automation was developed in this paper. Arduino microcontroller is used as a main controller. Arduino is amazingly useful device. They are used for a wide range of application. Arduino needs other components for receiving and sending data must be added to it. Arduino is designed to be all of that on it and it is used for the more cost effective in education and industrial applications

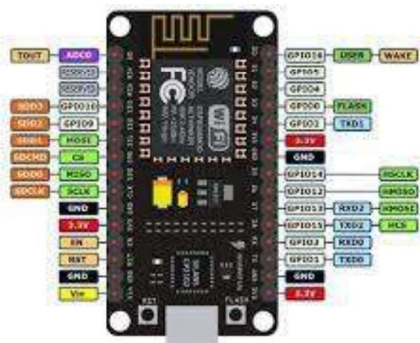
APPENDICES

APPENDIX A- DATA SHEET

ARDUNI UNO



ESP 8266



RFID



APPENDIX B- PROGRAMMING

Coding Scan Card

```
#include <LiquidCrystal_I2C.h>
#include <SPI.h>
#include <MFRC522.h>

#define RST_PIN 9
#define SS_PIN 10
byte readCard[4];
byte a = 0;
LiquidCrystal_I2C lcd(0x27, 16, 2);
MFRC522 mfrc522(SS_PIN, RST_PIN);

void setup() {
  Serial.begin(9600);
  lcd.init();
  lcd.backlight();
  while (!Serial);
  SPI.begin();
  mfrc522.PCD_Init();
  delay(5);
  mfrc522.PCD_DumpVersionToSerial();
  lcd.setCursor(2, 0);
  lcd.print("Put your card");
}
```

```

void loop() {
  if ( ! mfrc522.PICC_IsNewCardPresent() ) {
    return 0;
  }
  if ( ! mfrc522.PICC_ReadCardSerial() ) {
    return 0;
  }

  lcd.clear();
  lcd.setCursor(0, 0);
  lcd.print("Scanned UID");
  a = 0;
  Serial.println(F("Scanned PICC's UID:"));
  for ( uint8_t i = 0; i < 4; i++ ) { //
    readCard[i] = mfrc522.uid.uidByte[i];
    Serial.print(readCard[i], HEX);
    Serial.print(" ");
    lcd.setCursor(a, 1);
    lcd.print(readCard[i], HEX);
    lcd.print(" ");
    delay(500);
    a += 3;
  }
  Serial.println("");
  mfrc522.PICC_HaltA();
}

```

```
return 1;  
}
```


Coding Arduino uno

```
#include <Servo.h>
#include <LiquidCrystal_I2C.h>
#include <SPI.h>
#include <MFRC522.h>
#define SS_PIN 10
#define RST_PIN 9
#define LED_R 7
#define LED_G 4
#define buzzer 6

String UID = "73 CC 8A 11";
byte lock = 0;
Servo servo;
LiquidCrystal_I2C lcd(0x27, 16, 2);
MFRC522 rfid(SS_PIN, RST_PIN);

void setup() {
  Serial.begin(9600);
  servo.write(70);
  lcd.init();
  lcd.backlight();
  servo.attach(3);
  SPI.begin();
  rfid.PCD_Init();
  pinMode(LED_R, OUTPUT);
  pinMode(LED_G, OUTPUT);
```

```

pinMode(buzzer, OUTPUT);

digitalWrite(LED_R, HIGH);
digitalWrite(LED_G, HIGH);
digitalWrite(buzzer, HIGH);
delay(1000);
digitalWrite(LED_R, LOW);
digitalWrite(LED_G, LOW);
digitalWrite(buzzer, LOW);
}

void loop() {
  lcd.setCursor(4, 0);
  lcd.print("Welcome!");
  lcd.setCursor(1, 1);
  lcd.print("Put your card");
  delay(1500);
  if ( ! rfid.PICC_IsNewCardPresent())
    return;
  if ( ! rfid.PICC_ReadCardSerial())
    return;
  lcd.clear();
  lcd.setCursor(0, 0);
  lcd.print("Scanning");
  Serial.print("NUID tag is :");
  String ID = "";
  for (byte i = 0; i < rfid.uid.size; i++) {

```

```

    lcd.print(".");
    ID.concat(String(rfid.uid.uidByte[i] < 0x10 ? " 0" : " "));
    ID.concat(String(rfid.uid.uidByte[i], HEX)); delay(300);
}
ID.toUpperCase();
if (ID.substring(1) == UID && lock == 0 ) {
    servo.write(70);
    lcd.clear();
    lcd.setCursor(0, 0);
    lcd.print("Door is locked");
    digitalWrite(LED_R, HIGH);
    digitalWrite(buzzer, HIGH);
    delay(250);
    digitalWrite(LED_R, LOW);
    delay(250);
    digitalWrite(LED_R, HIGH);
    digitalWrite(buzzer, LOW);
    delay(250);
    digitalWrite(LED_R, LOW);
    digitalWrite(buzzer, HIGH);
    delay(250);
    digitalWrite(LED_R, LOW);
    digitalWrite(buzzer, LOW);
    lcd.clear();
    lock = 1;
}
else if (ID.substring(1) == UID && lock == 1 ) {

```

```
servo.write(160);  
lcd.clear();  
lcd.setCursor(0, 0);  
lcd.print("Door is open");  
digitalWrite(LED_G, HIGH);  
digitalWrite(buzzer, HIGH);  
delay(500);  
digitalWrite(LED_G, LOW);  
digitalWrite(buzzer, LOW);  
lcd.clear();  
lock = 0;  
}  
else {  
  lcd.clear();  
  lcd.setCursor(0, 0);  
  lcd.print("Wrong card!");  
  digitalWrite(LED_R, HIGH);  
  digitalWrite(buzzer, HIGH);  
  delay(2000);  
  digitalWrite(LED_R, LOW);  
  digitalWrite(buzzer, LOW);  
  lcd.clear();  
}  
}
```

CODING BLYNK

```
#include <ESP8266WiFi.h>
#include <BlynkSimpleEsp8266.h>

#define BLYNK_TEMPLATE_ID "TMPL6bBIRKQUL"
#define BLYNK_TEMPLATE_NAME "Quickstart Template"
#define BLYNK_AUTH_TOKEN
"bddzuoasznXOvpriRMgCPLMrwJdmQOpW"
#define LED_R 7
#define LED_G 4
```

```
char auth[] = "bddzuoasznXOvpriRMgCPLMrwJdmQOpW";
char ssid[] = ".";
char pass[] = "asampaiz";
```

```
#define PIN_UPTIME V6
```

```
BLYNK_READ(PIN_UPTIME)
{
  Blynk.virtualWrite(PIN_UPTIME, millis() / 1000);
}
```

```
BlynkTimer timer;
```

```
void myTimerEvent()
{
  int analogValueA = analogRead(A0); //reading the sensor on A0
  Blynk.virtualWrite(V1,analogValueA); //sending to Blynk

  if(V1 == 0)
  {
    Blynk.virtualWrite(V3,"DOOR IS OPENED"); //sending to Blynk
    delay (100);
  }
  if(V1 == 1)
  {
    Blynk.virtualWrite(V3," "); //sending to Blynk
    delay (100);
  }
}
```

```
else
{
  Blynk.virtualWrite(V3," "); //sending to Blynk
  delay (100);
}
}

void setup()
{
  Serial.begin(9600);
  Blynk.begin(auth, ssid, pass);
  timer.setInterval(1000L, myTimerEvent);
}

void loop()
{
  Blynk.run();
  timer.run(); // Initiates BlynkTimer
}
```

Appendix C (poster)




POLITEKNIK
MALAYSIA
Sultan Salahuddin Abdul Aziz

RFID DOOR LOCK SYSTEM USING ARUINO

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SUPERVISOR : ENCIK YAAKUB BIN OMAR

PROJECT BACKGROUND

RFID door lock is a type of electronic lock that you access using credentials like key fobs or key cards that are powered by RFID technology. RFID (radio frequency identification) technology uses electromagnetic fields to enable communication between two devices: tags and readers.




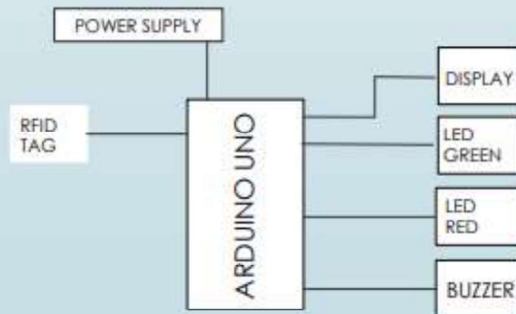
PROJECT IMPACT

- RFID systems offers a fast and reliable way to track them without having to count each individual item
- Saving time and money through automation
- Shorter processes
- Better control of production

PROJECT ABJECTIVE

RFID locker locks offer convenient installation, as the tag card is easy to use and more convenient to carry around compared to keys. RFID locker lock key cards can be carried in your wallet or clipped to your shirt. Unlike magnetic stripe cards, the RFID key cards do not need to make physical contact with the locker locks. One only has to come close enough to the reader to trigger the system and unlock the door.





```
graph TD; PS[POWER SUPPLY] --- AU[ARDUINO UNO]; RT[RFID TAG] --- AU; AU --- D[DISPLAY]; AU --- LG[LED GREEN]; AU --- LR[LED RED]; AU --- B[BUZZER];
```

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