DESIGN OF HOME AUTOMATION AND SMART SECURITY SYSTEM

A Project and Thesis submitted in partial fulfillment of the requirements for the Award of Degree of Bachelor of Science in Electrical and Electronic Engineering

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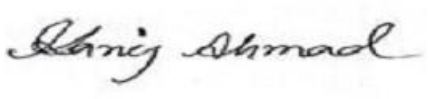
CERTIFICATION

This is to certify that this project and thesis entitled "**Design of Home Automation and Smart Security System**" is done by the following students under my direct supervision and this work has been carried out by them in the laboratories of the Department of Electrical and Electronic Engineering under the Faculty of Engineering of Daffodil International University in partial fulfillment of the requirements for the degree of Bachelor of Science in Electrical and Electronic Engineering.

Signature of the Supervisor



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Dedicated to

Our Parents

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LIST OF ABBREVIATIONS

AC	Alternating Current
DC	Direct Current
TV	Television
Wi-Fi	Wireless Fidelity
RFID	Radio Frequency Identification
Tr	Transistor
LCD	Liquid Crystal Display
BOLT	Built-Own-Lease-Transfer
IOT	Internet of Things
IDE	Integrated Development Environment
IOS	iPhone Operating System
I/O	Input output

LIST OF SYMBOLS

V	Voltage
A	Ampere
mm	mili meter
C	Collector
B	Base
E	Emitter
uF	Micro-Farad
K	Kilo-Byte

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ABSTRACT

Smart home systems have gained tremendous popularity over the past several decades as they add to convenience and quality of life. The IoT-based smart home automation security system is designed to assist people with physical disabilities and the elderly as well as control electrical devices and monitor room safety using a mobile application. In this project, two lamps are controlled by two relays, and the DC power is distributed to a DC power supply through a transformer. The card reader is also used to lock and unlock the door. If customers want, they can enter the house by punching the card in the card reader through the clocking machine. Use servo motor as door lock mechanism. The card reader will send a value that is rejected if the user is unknown. The purpose of IOT is to help those who are especially challenged and the elderly in controlling their appliances and their safety benefits. It is very useful for these people in critical situations. There are two ways to access this Wi-Fi connection process, it is engaged to the router. The process is inexpensive and controls most of the devices on a normal circuit.

CHAPTER 1

INTRODUCTION

1.1 Introduction

The need for web and smart devices every minute of human life is growing where networks have become an integral part of life and are widely used throughout the universe [1] today. The use of smartphones with Wi-Fi is the subject of controversy in this article. Granted, all operations must be handled by a powerful and advanced microcontroller that serves as a gateway to the Internet [2, 3].

Our main objective is to include the electrical appliances used in our homes in the modernization system. So, we are designing a device so that the public can use the device in the modernization system in their homes. How will this device work for us, a mobile will work, there will be a mobile that can install our AC, fridge, TV, fridge etc. through the mobile. At the same time, we have used a card reader in this device through which we will control the door lock system.

This project presents a **Design of Home Automation and Smart Security System**. Now, is the time to use our ideas and the use of technology in our home appliances and security systems. So, we can modernize our daily life. For example, we have included two electric bulbs and a door lock system in this project. I will control all these issues through a mobile app. Mobile A will connect with our project through Wi-Fi connection.

1.2 Problem Statement

Problem statement in current situation / existing system, user temperature is busy and real house information cannot be obtained anywhere. Only conventional security systems were used without surveillance and emergency security alarms and responses. Elderly and disabled users have difficulty accessing the lights and controlling the fans themselves instead of automated processes. The condition and safety of the home is not known when the client is away from

home for a few days. The complexity of the high-cost installation and configuration of previous home automation systems has not received much of a demand and attention.

1.3 Objectives

The objectives of this project and thesis are

i. To Manage all of your home devices from one place
ii. To Flexible for new devices and appliances
iii. To Maximize smart home security
iv. To easy Remote control of home functions
v. To Increase energy efficiency
vi. To manage insights of home

1.4 Scopes

Our project acts as an effective solution in controlling electronics devices and home security.

i. Smart Home and security systems will increase the value of your home appliances control and system.
ii. To control the various appliances of the office-court from home
iii. There is widespread use of automation in factories, we can use this technology in different factories if we want.
iv. It is possible to ensure security even if there are no people in any place.
v. Sophisticated controlling system for the patient in the hospital.
vi. Showrooms, shopping malls where multiple electronics appliances need to be controlled.

1.5 Research Methodology

The design and program of this project is based on IOT (internet of things) which can make easy in controlling devices and door locks. The methodology of the proposed system is mainly divided in many steps.

In this project two electric bulbs are being controlled by two relays and DC power is being distributed through a transformer as a DC supply. A card reader has also been used to lock and unlock the door. If any user wants, he can enter the house by punching the card in the card

reader through card punching. A servo motor has been used as the door lock system mechanism.

1.6 Organizing Report

There are six chapters in this project report. The first chapter describes the concept of the project “Smart Home and Security Systems”, a brief description of the scope and methods. History, block diagram, circuit diagram and component list are in chapter two. Chapter III about components description. Chapter four about software analysis and program description, and finally, references for our systems and future work.

CHAPTER 2

LITERATURE REVIEWS

2.1 Introduction

Every day we are converting to digital from analogy, we are going to develop a home automation & security system with some of the new technology like Wi-Fi. These methods control all electronic devices, minimizing human participation. It offers many features such as greater security, comfort and safety, and contributes to greater safety by using more energy and resources.

2.2 Literature Survey

Govinda et al discussed safety and compliance systems for real estate based on GSM technology (2014) provide two ways to implement home security using IoT [3]. A person uses a webcam, and when the camera detects any movement, it sounds and sends a message to its owner. This method of detecting intrusion is very good, expensive due to the cost of the diagram related to the process. The camera must have a very good resolution which means it must have a lot but the image size should be high enough to detect movement. If you go for moving cameras like a dome camera they will cost more than fixed.

Curry proposed an SMS system using GSM, and Daniel (2005) wanted to use an Internet service to send messages or tell homeowners to know SMS. [4] Jayashree and Arvind (2013) implemented a fingerprint scanner to unlock the door [5]. This system helps customers by allowing the homeowner's finger only to authorized customers. The system may be utilized to monitor an intruder. This feature comes with other home security features such as gas vents and fire damage. While the process is good, fingerprint sensors are more cost and difficult (they require an increased resolution) to engage in IoT settings. Some experts argue that it is not wise to rely solely on fingerprints because it is easy to pick up and reproduce human fingers, so it is useful to use fingerprint scanners on both test systems. has another cover. Security is in the form of PIN available, passcode, voicemail, etc.

Some researchers have proposed ideas for a robust IoT home security system that failure of any part of the system will not show in the whole system. [6]. The goal is to use as many devices as possible in a way that they may not be compatible with each other and may replace parts of the existing system When an error occurs. As a result, the model has the ability to integrate between different devices, resulting in energy storage, thus the model works well. The example given for the said model using the temperature sensor, Wi-Fi module and sensor way to change the camera is not good. Authors are successful in trying to illustrate a given example. However, such an energy system is used and is useful for those who need high flexibility in their safety system and are willing to invest more than before.

The laser beam with the LDR sensor is as it was done in 2016 detected by using motion. The way the system works is that the laser is on the LDR sensor and the laser is in contact with the LDR sensor, the signal loses the signal ya. The alarm attached to the sensor will alert neighbors and send the owner of the system, solving the problem of local coverage on outside the camera. But there is a problem with the system having a GSM module for sending messages, that depends on media network coverage. Due to the traffic nature of the laser, this can be avoided by criminals who know about the system and have the ability to expel the laser beam, making the whole system useless.

A new way to create electronic locks using Morse code and IoT technology [8]. The authors say, this is the first concept to be tested before and the first "optical morse electronic locking system" was used as an LED (light emitting diode) medium to transmit the signal. To make it more accessible to ordinary people, LED was used in smartphones. The receiver side is a photosensitive resistor, just like a microcontroller like an Arduino processor, which can decode the optical signal after it has been received by the LED. After the signal is decoded, the owner can verify the system instead of uploading the current state of the lock to the system. The cloud the authors experimented with the system in real time and it proved to work in different brightness environments, with all functions working as intended. The author claims to have a very simple and easy to use interface. The IoT system developed here works well and is available to everyone and convenient. Since using a mobile phone as an LED, it is a costly alternative. Expensive [9] Anita et al (2016) offers a home automation system and It also provides a model for Artificial Intelligence and Cyber Security [10, 11].

2.3 Advantages of Smart Home & Security

1. Also organize all your home appliances from one location. The good thing here is huge. We can use all the technology in the house through one interface is a huge advancement for technology and home management. Usually, you have to learn to use the application on your smartphone and tablet and you can click multiple apps and devices across your home. This reduces the learning curve for new customers, getting services easier you want for your home.

2. Changes for new applications and applications. The smart home system is fantastic when welcoming new devices and other technology applications. How to make your application better right now, new and exciting apps will last longer. In addition, you add to your hardware application when you replace old ones or when you find new technologies as well as in your home and outdoors. Being able to connect these newcomers seamlessly will make your job as a homeowner easier and allow you to upgrade using the modern technology of life.

3. When you add security to the surveillance system to your smart home network, the security of your home unfolds. There are so many options here, Only 12 of them are currently under investigation. For example, a home-based system can connect motion detectors, surveillance cameras, automatic door locks and other security features to your entire home, so you can activate them from your mobile phone beforehand. you go to bed. You can also choose to receive security updates on your various devices depending on the time of day and monitor the activity during whether you are at home or halfway around the world.

4. Managing household chores. Do not underestimate the strength of your room. you may order your home to cool down A while before going home to work. When you are in the store, even if you are in a hurry to start eating, you may start your warm-up when you go home. You can also check whether the light is on, who is at your door.

5. Increased energy. Depending on how you use your latest technology, it is possible to increase your chances of success. For example, you can control the intensity and warmth of your home by using your program and smart technology to learn your hobbies and suggest the best basis

for working a job all day. The lighting program on the engine cover can be switched to evening mode at sunset, or the light can be automatically on and off when entering or leaving the building, so you do not have to worry.

6. Improve tool functionality A smart home can also help you use your devices better. Smart TV helps you find the best apps and channels to identify your favorites. The smart oven will help you cook your chicken perfectly without worrying about it being overcooked or overcooked. Smartly designed home theater and sound systems make your movie and music collection easy while keeping guests entertained. After all, connecting your appliances and other systems with automation technology will enhance the efficiency of your appliances and make your home life easier and more comfortable.

7. Understanding housekeeping. There is also talk of your ability to gain understand how your home works. It can monitor how much time you watch TV (and what you watch), the type of food you get out of your oven, the type of food you put in your fridge, and your energy consumption over time. With these insights, you will be able to examine your habits and practices on a daily basis, and make changes to live the kind of life you want.

2.4 Summary

We discussed whole over the home automation & security from beginner to twenty first century in this chapter-2. We mentioned history of home automation & security, deference between old and present home automation with the new features and adventure of automation. We think this security & home automation is very important for our country for save time and cost effective.

CHAPTER 3

ANALYSIS OF THE SYSTEM COMPONENT

3.1 Introduction

In this section, we have talked about different parts that will be expected to make this "**Design of Home Automation and Smart Security System**".

3.2 Components

Home Automation & Security has the following main components are

1. ATmega328p
2. ESP-01
3. 16*2 LCD display
4. Servo Motor
5. Transformers
6. RFID Card reader
7. Transistors BC547
8. Zener diode 3.3v
9. Capacitor 220uf / 50v
10. Relay
11. push button Switch
12. Resistors
13. Jumper wire
14. Lamp

3.2.1 ATmega328p

ATmega328 is commonly used in many applications and vertical systems where simple micro-control is required, low power, and low cost.

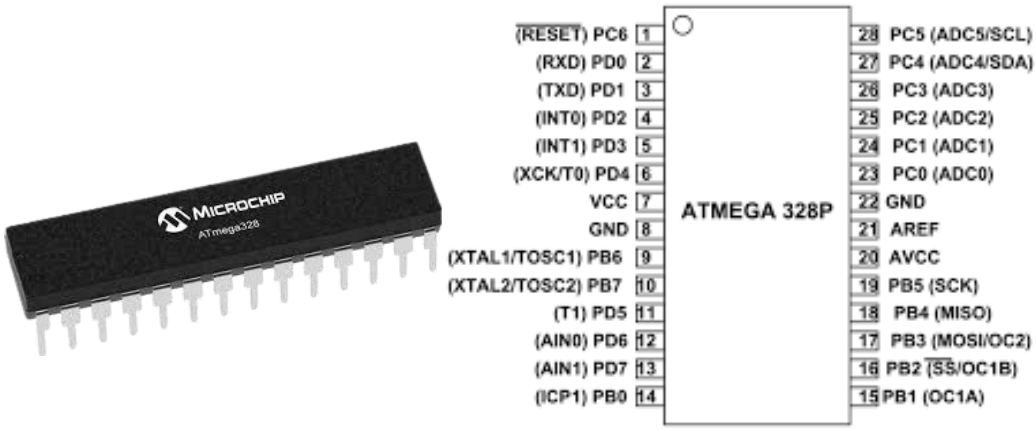

Fig: 3.1 ATmega328 micro-controller

Features of the ATmega328:

- Microcontroller: ATmega 328.
- Service voltage: 5V.
- Input voltage (recommended): 7-12V.
- Voltage input (limit): 6-20V.
- Digital M / O pins: 14
- Analog Converter: 6.
- M DC current from M / O pin: 40 mA.
- DC current for pin 3.3V: 50 mA.

3.2.2 ESP8266 (Wi-Fi)

The **ESP8266** is a low-cost Wi-Fi module .In this project we have used Wi-Fi module, so that we can easily connect to mobile app when we are near our home.

Fig: 3.2 ESP8266 (Wi-Fi)

It has the following specifications and features:

- Wi-Fi Module – ESP-12E module similar to ESP-12 module but with 6 extra GPIOs.
- USB – micro-USB port for power, programming and debugging.
- Headers – 2x 2.54mm 15-pin header with access to GPIOs, SPI, UART, ADC, and power pins.
- Misc. – Reset and Flash buttons.

3.2.3 16*2 LCD Display

The Liquid Crystal Display LCD has an electronic display system and several applications. The 16x2 LCD display is a compact module and is commonly used in a variety of devices and circuits. The 16x2 Liquid Crystal Display means it can display up to 16 characters in a row and there are 2 such symbols. Each letter on this LCD is displayed on a 5x7 pixel matrix. The 16 x 2 Intelligent Alphanumeric Dot Matrix Display can display characters and 224 characters. This LCD has two records, commands and data.

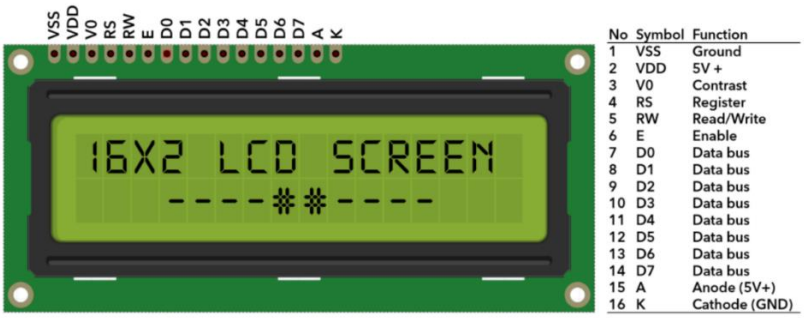

Fig: 3.3 16*2 LCD Display

3.2.4 Servo Motor

Servo motor which is high force engines which are usually utilized in mechanical technology and a few different applications because of the way that it's anything but difficult to control their turn. Servo engines have an equipped yield shaft which can be electrically controlled to turn each degree in turn. For control, not at all like ordinary DC engines, servo engines for the most part have an extra pin aside the two force pins (Vcc and GND) which is the sign pin. The sign pin is utilized to control the servo engine, turning its shaft to any ideal point.

Fig: 3.4 SG90 Servo Motor

The low and light weight and high power of servo is about 180 degrees (90 per series), but still humble as a variety. You can utilize any service code, tool or directory to control these servers. It is useful for those with legs who need to move things without having to build an engineer as well as clamps on boxes, especially in small spaces. It comes with 3 horns and accessories.

3.2.5 Transformers

12-0-12 1A Center taped Step Down Transformer A standard transformer for chassis mounting. This switch has both 230V winding head and center cast windings. The flywheel is a color-coded oil-cooled conveyor belt (approx. One hundred mm long). The transformer acts as a step-down transformer that reduces AC-230V to AC-12V. The power supply provides outputs of 12V, 12V and 0V.

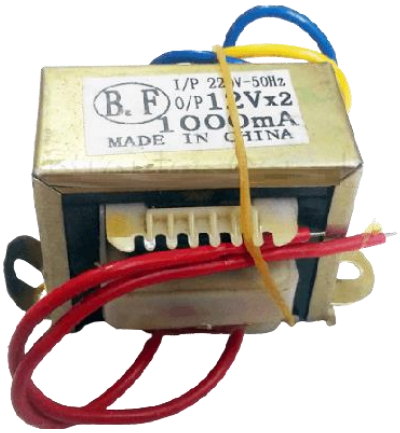

Fig: 3.5 Transformers

3.2.6 RFID Card reader

RFID Card Reader is a driverless USB interface, a powerful computer input application that can read the serial number of an RFID card and output it to a computer via a USB port in the format specified without additional procedures.

Fig: 3.6 RFID Card Reader

3.2.7 Transistors BC547

The transistor is in fact an electrically controlled switch. BC547 is an NPN transistor which transmits from the receiver to the emitter when power is supplied to the settings (control line). NPN transmitters usually “switch down” on the device, so they are placed in the circuit after output.

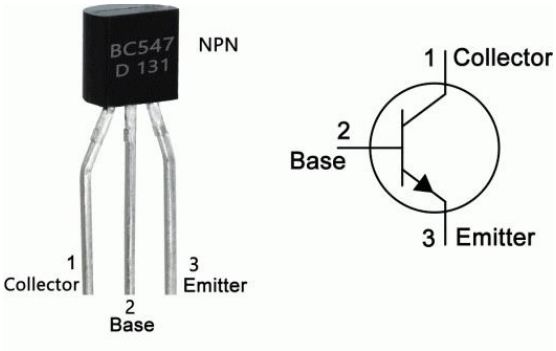

Fig: 3.7 Transistors BC547

3.2.8 Zener diode 3.3v

Zener diode is a semiconductor device that allows it to move forward or turn face up. The diode has a special, completely doped PN stop that is made to work in the reverse direction when a certain voltage is reached. In this project uses zener diode 3.3v.

Fig: 3.8 Zener diode

Zener diodes are more doped than conventional diodes. They have an extra thin decay area. We apply a voltage higher than the Zener breakdown voltage (ranging from 1.2 volts to 200 volts), the attenuation area disappears and a great current flow through the intersection.

3.2.9 Capacitor 220uf / 50v

An electrical device with two split plates of an electrical insulator (insulator), designed to hold electrical charges. When voltage is applied across the plate the charge increases, creating electricity between them.

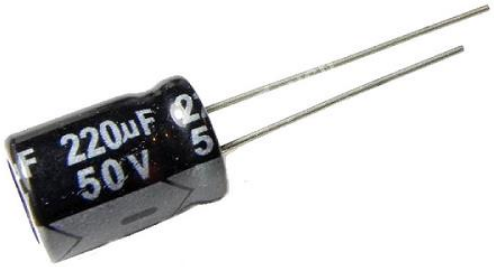

Fig: 3.9 capacitor

3.2.10 Relay

The relay is an electromagnetic compartment that can be turned on or off from small amounts of water already.

Fig: 3.10 Relay

Basically, we will do the project of turning the motor on and off using

3.2.11 push button Switch

The smart home and security system have been used a push button switch. The push button switch given below,

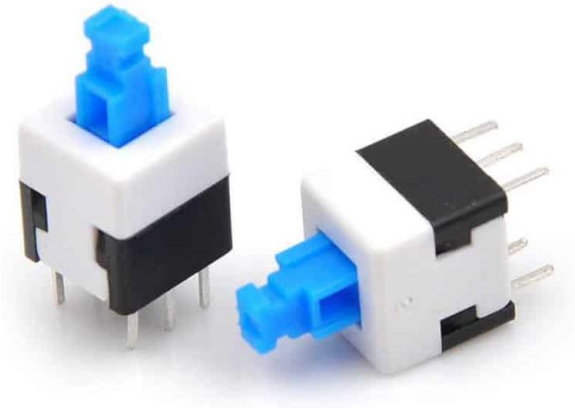

Fig: 3.11 Push button switch

3.2.12 Resistors

The conductor has a low stability, while the insulator has high resistance. Let us introduce well-regulated pressure in the electrical circuit of devices called resistors. The resistor works by pumping electrical energy into a flame, which blows into the air.

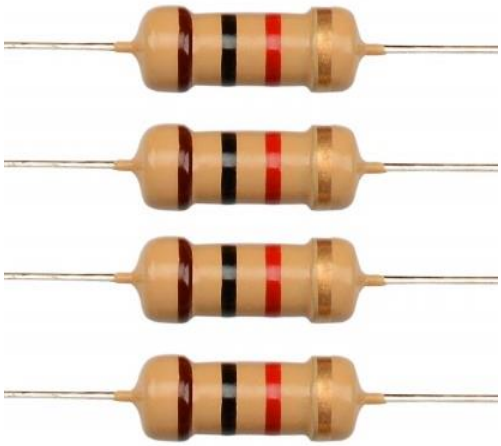

Fig: 3.12 Resistor

3.2.13 Jumper wire

The jumper wires, which are wires that have a connecting point at each end, are used to connect two densities to each other randomly. Commonly used wires are used on different boards to support the business for circuit switching.

Fig. 3.13 Jumper wire

3.2.14 AC Bulb

LED Saving Lamp/ Bulb-7 Watt.

Operating Voltage (AC): 220~240V.

Fig. 3.14 AC Bulb

3.3 Summary

This chapter deals with the basics of this Home Automation. All parts used for this work are good and work well. In this chapter, we attempt to describe in detail the functional characteristics of each used hardware and their contribution.

CHAPTER 4

HARDWARE DEVELOPMENT

4.1 Introduction

This chapter describes the hardware implementation process of **Design of Home Automation and Smart Security System** with latest Features Solving Algorithms. The main topic discussed in this article is how this software works. Details and hardware links are provided below:

4.2 Block Diagram Connection

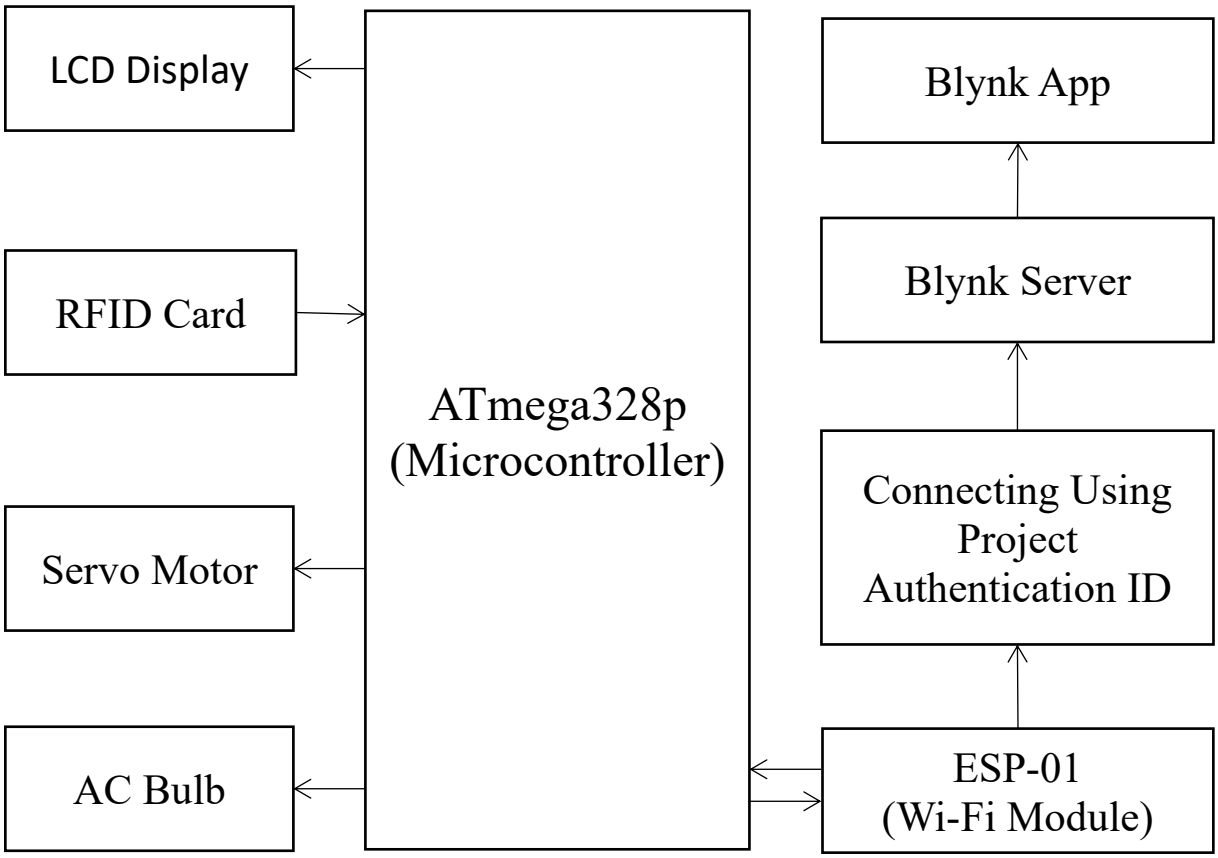

Fig: 4.1 Block Diagram of smart home & Security

4.3 Project Flow chart

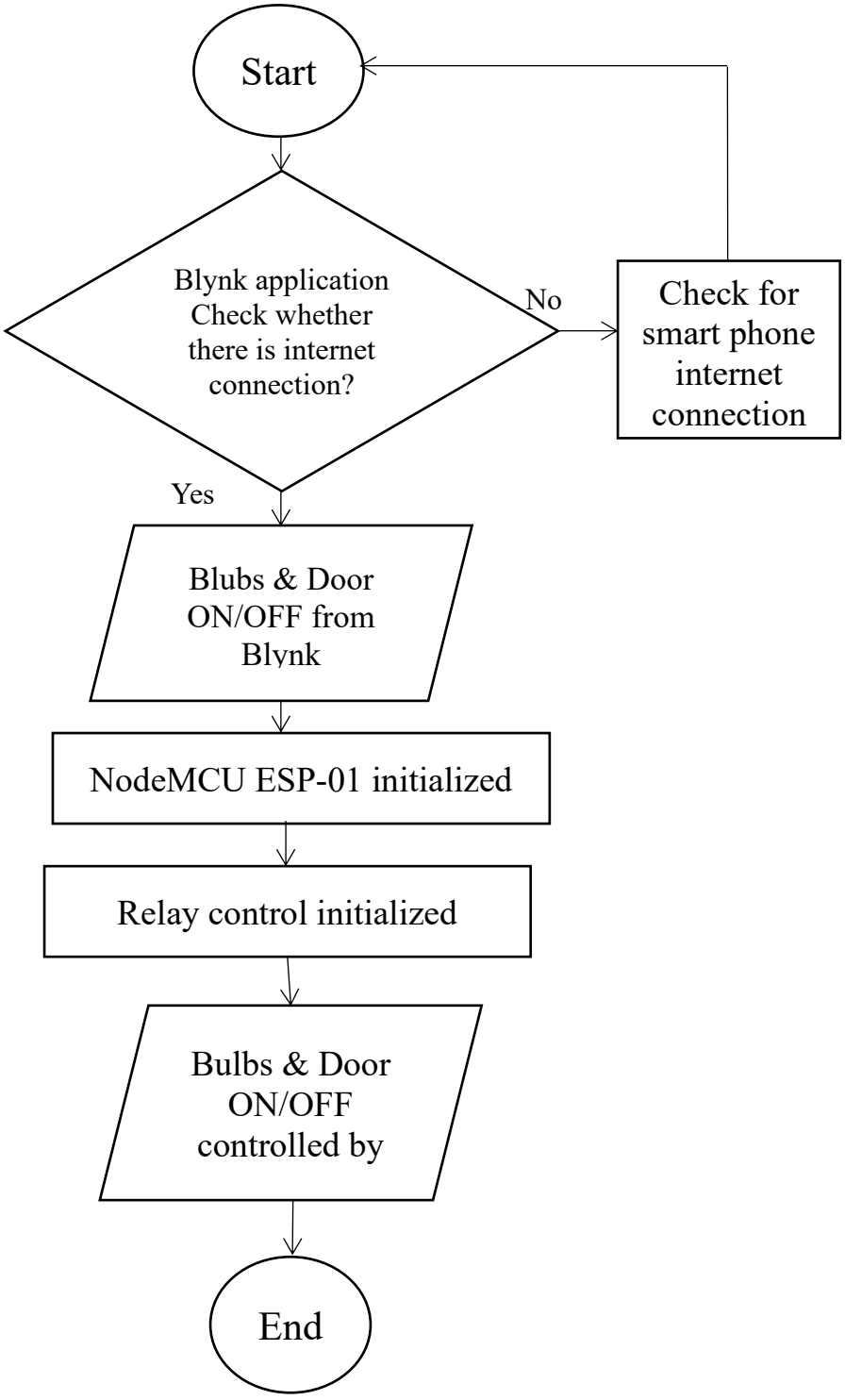

Fig: 4.2 Flowchart of smart home & Security

4.4 Algorithm of the smart home & security

Step 1: ATmega328p receives data via ESP-01 from blynk app

Step 2: ATmega328p receives data from sensor like RFID Card reader.

Step 3: Ac blub is to turn on from blynk app command.

Step 4: Door lock/unlock is to control from blynk app command.

Step 5: Door lock/unlock is to control by RFID Card

Step 6: LCD Display reads all values and shows information's.

Step 7: End

4.5 Hardware Connection

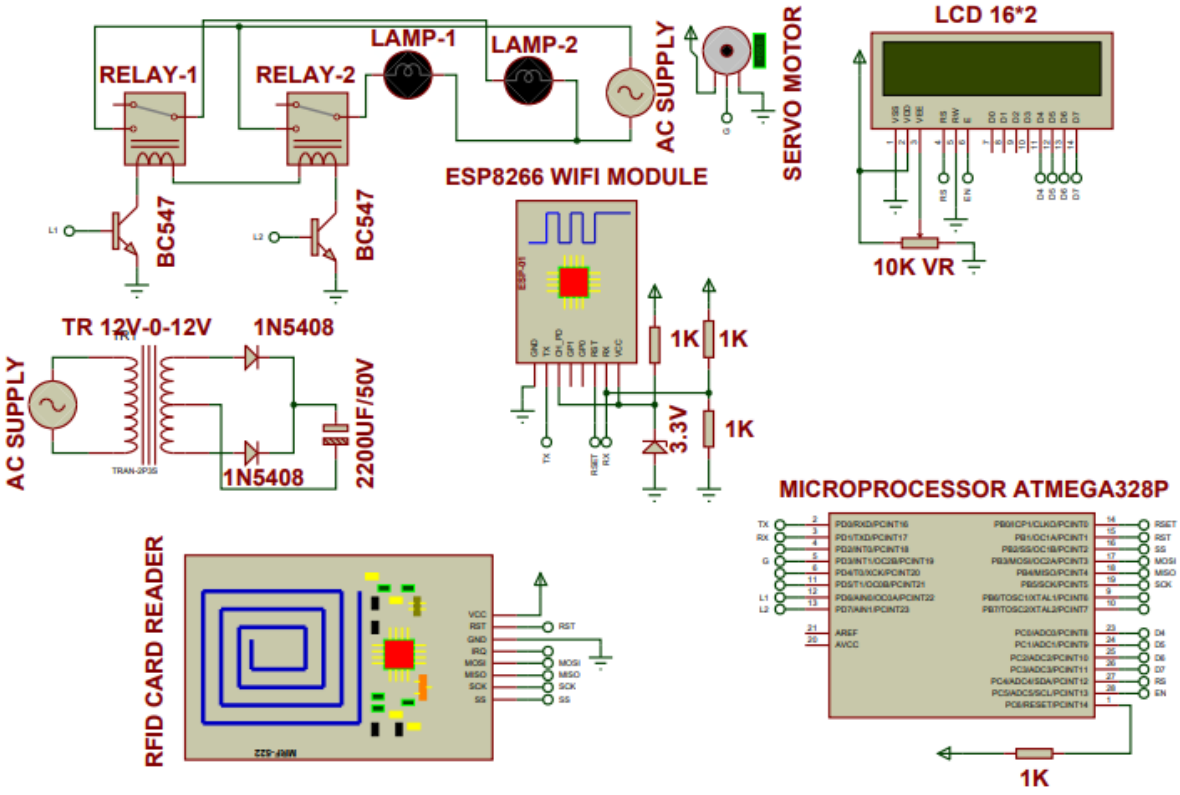

Fig. 4.3 Circuit diagram of smart home & Security

4.6 Summary

After all that is done as a result of this, Design of Home Automation and Smart Security System and Smart features are ready to display. The main problem in this chapter is the algorithm-based algorithm based about the performance of this function. Therefore, the main purpose of these words is to understand the algorithm and the graph diagram.

CHAPTER 5

RESULTS AND DISCUSSIONS

5.1 Introduction:

In this chapter will be present all the results and calculation and relevant discussions. After finished the project we run experiment on “Design of Home Automation and Smart Security System”.

5.2 Final Result:

The controller used in this study is an Atmega382 microcontroller. Its work is to coordinate all the activities of the smart home and security system. The controller output is sent as a digital control to the smart home and security system via the relays. Relay has been connected using two transistors (BC547).

In this project two electric bulbs are being controlled by two relays and DC power is being distributed through a transformer as a DC supply. A card reader has also been used to lock and unlock the door. If any user wants, he can enter the house by punching the card in the card reader through card punching. A servo motor has been used as the door lock system mechanism.

A Wi-Fi device has also been connected so that smart home and security system devices can be connected to the mobile app. An 16*2 LCD display has been used.

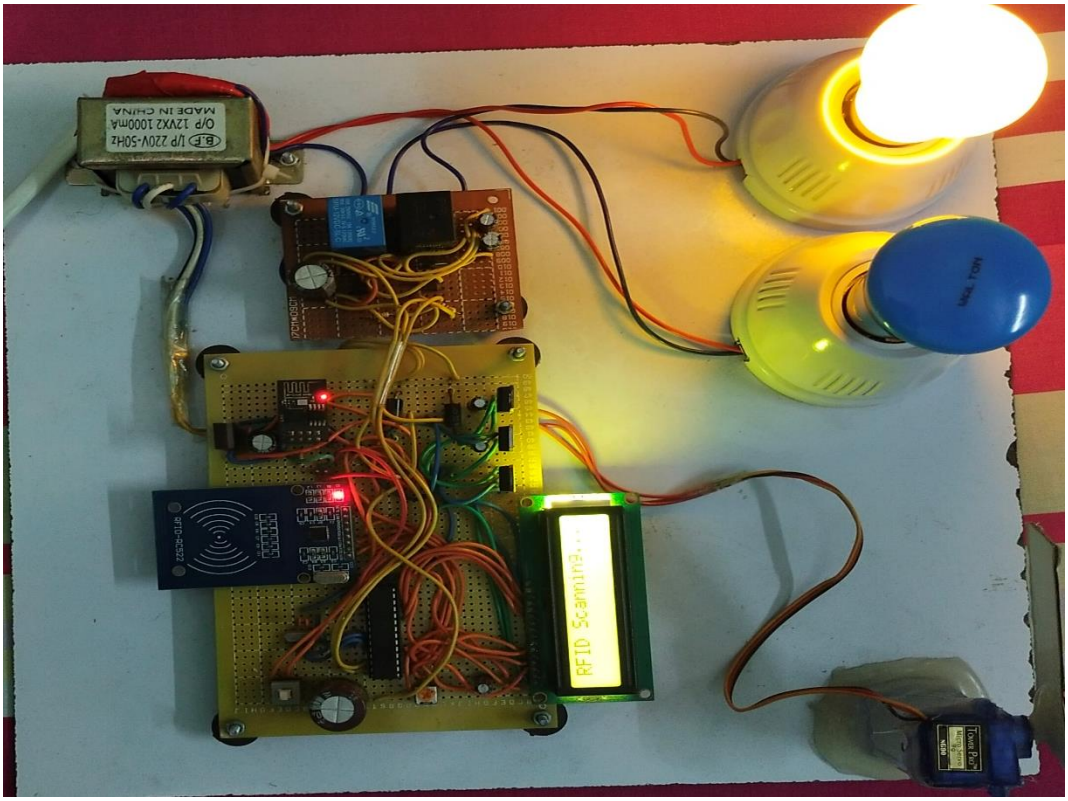

Fig. 5.1 First load active of smart home & security system

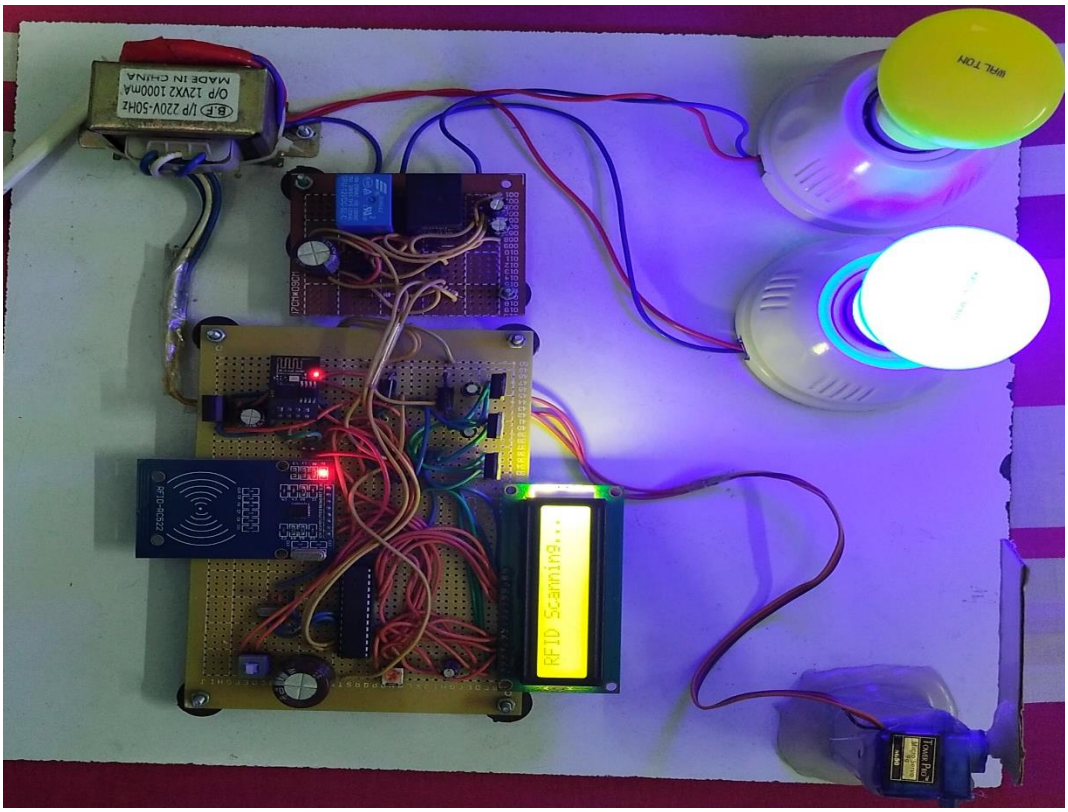

Fig. 5.2 second load active of smart home & security system

Fig. 5.3 closed condition of the door of smart home & security system

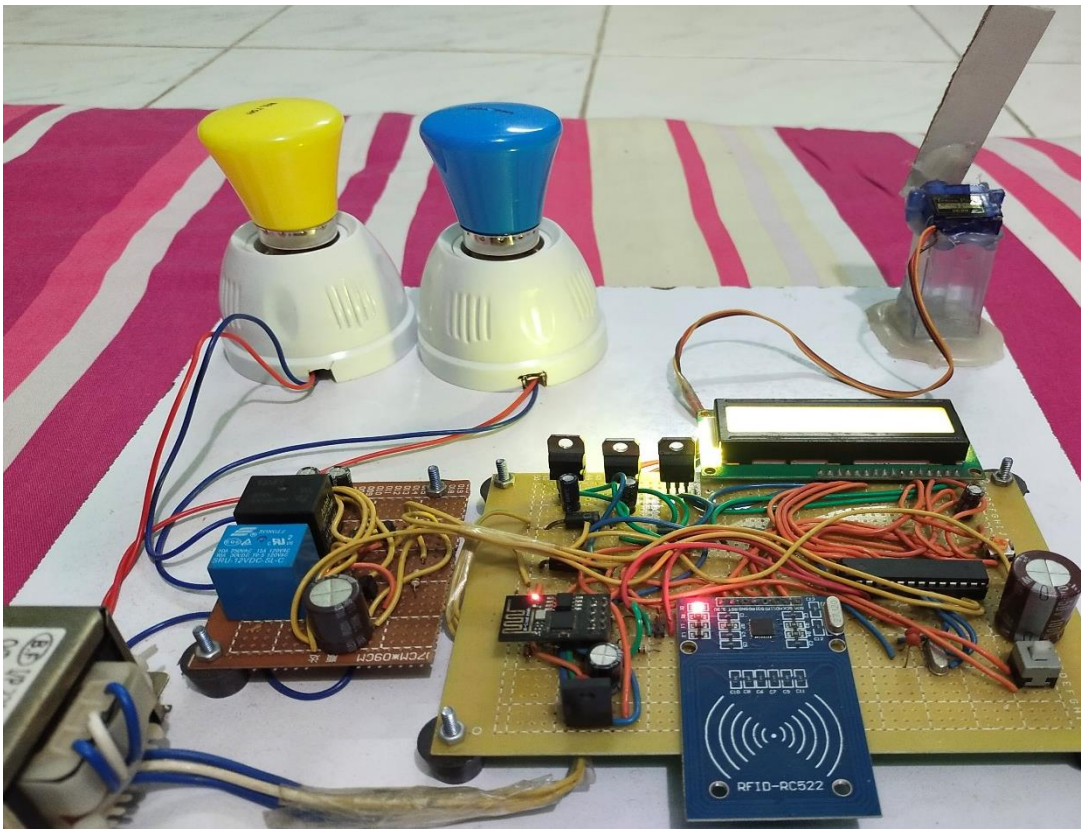

Fig. 5.4 opened condition of the door of smart home & security system

Programming and coding:

An IoT-based device that can automate a smart home and security system. Data from the sensors is displayed graphically in the BOLT cloud page. So we need some programming for Arduino, to create communication others component.

1. Arduino IDE (Include ESP8266 library)
2. Blynk IOT platform (Include blynk- library)

- **Arduino IDE (Integrated Development Environment):**

  Arduino IDE is open-source software used primarily writing and compiling code on the Atmega 328P microprocessor. The master code, also known as the sketch created on the IDE platform, eventually generates the hex file, which is then transferred and uploaded to the controller on board.

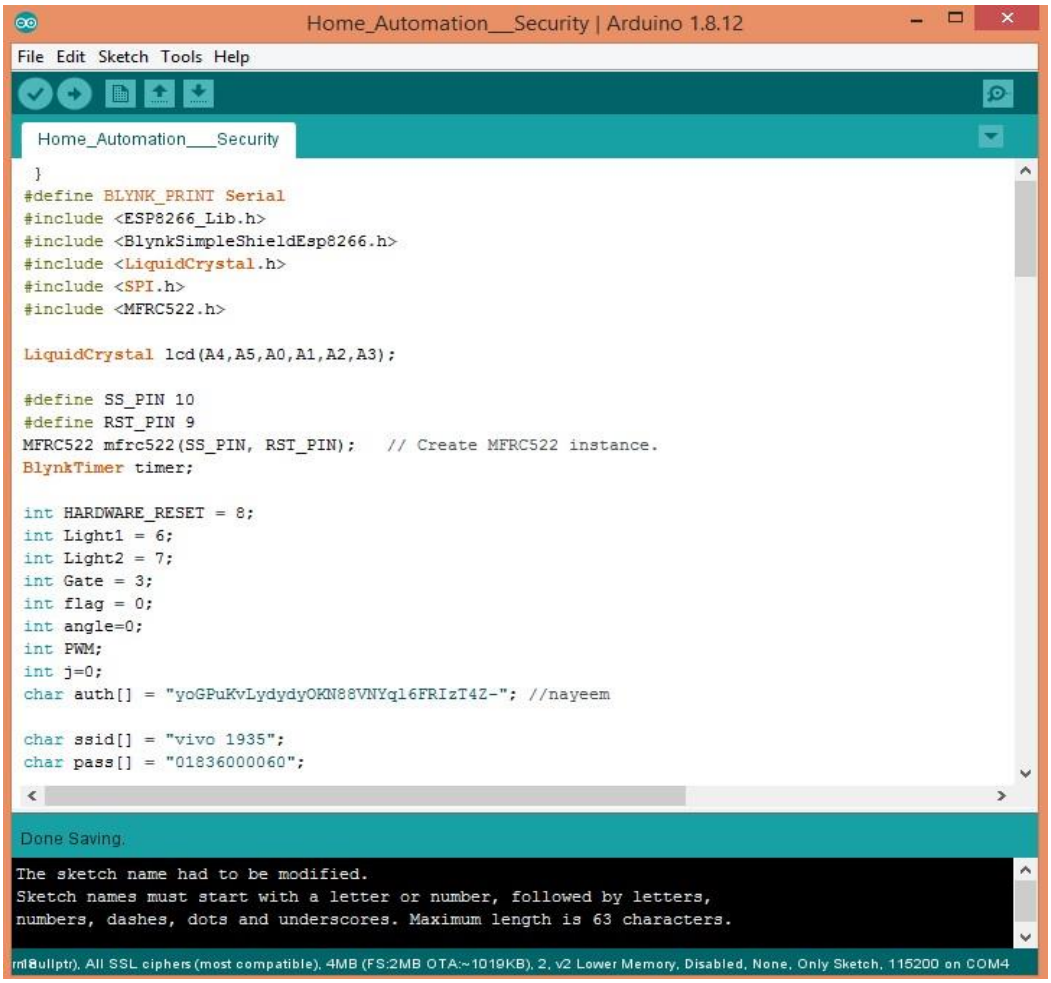

Fig. 5.5 Arduino IDE software

- **Blynk:**

  Blynk is an application management platform for iOS and Android interest on Arduino, Raspberry Pi and the internet. This is a digital widget, where you can create a graphic design for your project by dragging and dropping the widget.

Fig. 5.6 Command of two load for active

Fig. 5.7 Command of three load for active

5.3 Cost Analysis

Table 5.1 Cost analysis of the project

SL. No.	Name	Quantity	Price
1	ATmega328p	1	100
2	ESP-01	1	200
3	16*2 LCD display	1	220
4	Servo Motor	1	100
5	Transformers	1	150
6	RFID Card reader	2	200
7	Transistors BC547	1	5
8	Zener diode 3.3v	1	4
9	Capacitor 220uf / 50v	3	5

10	Relay	2	120
11	push button Switch	1	5
12	Resistors	5	5
13	Jumper wire	As needed	100
14	Lamp	2	140
	Total		1354

5.4 Summary

In this chapter has discussed the result and discussion. With our project, we became fruitful to demonstrate with regarding the objectives of the project. At last, finishing this chapter the task is prepared to use. We briefly discuss and show the result of our experiment.

\

CHAPTER 6

CONCLUSIONS

6.1 Conclusions

In this project, we introduced a safety and security system. This goal is primarily to overcome the problems that people face on a daily basis such as firefighting, uncontrolled urban development, lack of capacity in agriculture and agriculture. Our systems affect the time and space security, infrastructure, monitoring and management of remote systems. Another important part of the service is the connection between ESP-01 (Wi-Fi module) and Blink Server. The system integrates well with the Blink server by using a checkmark in the Blink library. As a result, we can get status with our smart. It was also found that the Blink application works well and manages all the communication between the hardware and the application directly.

6.2 Applications

The most common applications of home automation are

i. Lighting control.
ii. Heating.
iii. Ventilation.
iv. Air conditioning.
v. Outdoor lawn irrigation.
vi. Kitchen appliances.
vii. Security systems.

6.3 Limitations of the Work

Our project can be very stressful at times. Since our operations are Internet-based, our devices are fully controlled by Net Access. When running an entire internet system, we need to make sure the maximum speed of the internet. Otherwise, the process will be delayed because the

Ethernet shield will not work as an internet provider for the circuit. The scope of this project is based on energy. In the case of a power outage, the net connection will cease. Unable to access data. So, without a security system, it is not a complete storage resource. Although they need a small circle, its price is not low. To get the extension, users need an account for it. The cost of installing a home appliance system is expensive. But it depends on the device. This device is very expensive and expensive.

This virtual system is limited to one time server, which means that only one person can run the system at a time. If there is a fault due to the disconnection of the cable or cable, the entire system will be destroyed. Therefore, it is not in the case of various signals or radio signals. The symptoms are difficult to detect. If one no longer manufactures the app without problems or uses a specific key, mistakes can be made. Human error does not immediately destroy the machine.

6.4 Future Scopes of the Work

Open systems can be used in corporate and commercial applications such as offices, warehouses and other areas reserved for authorized personnel only or in other important areas such as large and secure MNC Internet server servers. With stolen corporate data The system can be upgraded to include additional security features such as cameras, search markers, and more. This process can be advanced by adding RFID scanner so that authorized users can only carry the RFID or NFC signal to their person. The RFID checksum is activated by the wireless tag check and if the user is allowed to enter, the locking process can be temporarily suspended so that the user can enter.

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APPENDIX

Program Code:

```
#define BLYNK_PRINT Serial
#include <ESP8266_Lib.h>
#include <BlynkSimpleShieldEsp8266.h>
#include <LiquidCrystal.h>
#include <SPI.h>
#include <MFRC522.h>

LiquidCrystal lcd(A4,A5,A0,A1,A2,A3);

#define SS_PIN 10
#define RST_PIN 9
MFRC522 mfrc522(SS_PIN, RST_PIN);
BlynkTimer timer;

int HARDWARE_RESET = 8;
int Light1 = 6;
int Light2 = 7;
int Gate = 3;
int flag = 0;
int angle=0;
int PWM;
int j=0;
char auth[] = "yoGPuKvLydydyOKN88VNYql6FRIzT4Z-";

char ssid[] = "vivo 1935";
char pass[] = "01836000060";

#define ESP8266_BAUD 115200
ESP8266 wifi(&Serial);
void setup()
{
```

```
 Serial.begin(115200);
 delay(200);
 lcd.begin(16,2);
 lcd.clear();
 delay(500);
 lcd.setCursor(0,0);
 lcd.print("    IOT Home    ");
 lcd.setCursor(0,1);
 lcd.print("   Automation   ");
 delay(4000);
 pinMode(Light1,OUTPUT);
 pinMode(Light2,OUTPUT);
 pinMode(Gate,OUTPUT);
 digitalWrite(Light1,LOW);
 digitalWrite(Light2,LOW);
 digitalWrite(Gate,LOW);
 servopulse(Gate,0);
 Serial.begin(ESP8266_BAUD);
 pinMode(HARDWARE_RESET,OUTPUT);
 digitalWrite(HARDWARE_RESET, HIGH);
 EspHardwareReset(); //Reset do Modulo WiFi
 delay(200);
 Blynk.begin(auth, wifi, ssid, pass);
 lcd.clear();
 lcd.setCursor(0,0);
 lcd.print("RFID Scanning...");
 timer.setInterval(100L, RFID);
}
void loop()
{
 timer.run(); // Initiates SimpleTime
}
```

```
void EspHardwareReset(void)
{
 digitalWrite(HARDWARE_RESET, LOW);
 delay(500);
 digitalWrite(HARDWARE_RESET, HIGH);
 delay(8000);//Tempo necessário para começar a ler
}


void servopulse(int servo,int angle)
{

}

void RFID()
{
    MFRC522::MIFARE_Key key;
    for (byte i = 0; i < 6; i++) {
        key.keyByte[i] = 0xFF;
    }

    if ( ! mfrc522.PICC_IsNewCardPresent()) {
        return;
    }

    if ( ! mfrc522.PICC_ReadCardSerial()) {
        return;
    }

    for (byte i = 0; i < mfrc522.uid.size; i++) {

    }
```

```
  byte piccType = mfrc522.PICC_GetType(mfrc522.uid.sak);

  if (      piccType != MFRC522::PICC_TYPE_MIFARE_MINI
        &&      piccType != MFRC522::PICC_TYPE_MIFARE_1K
        &&      piccType != MFRC522::PICC_TYPE_MIFARE_4K) {
        return;
  }

  if( ((mfrc522.uid.uidByte[0] == 1) && (mfrc522.uid.uidByte[1] == 1) &&
rc522.uid.uidByte[2] == 1) && (mfrc522.uid.uidByte[3] == 34)))
  {
   lcd.clear();
   lcd.setCursor(0,0);
   lcd.print("Welcome .....");
   delay(1000);
   lcd.clear();
   lcd.setCursor(0,0);
   lcd.print("MD.Ibrahim");
   Blynk.virtualWrite(V0, "MD.Ibrahim" );
   delay(200);
   for (angle=0; angle<90; angle+=1)
    {
    servopulse(Gate,angle);
    }

     delay(4000);

     for (angle=90; angle>=0; angle-=1)
      {
       servopulse(Gate,angle);
      }
```

```
      else
      {
       lcd.clear();
       lcd.setCursor(0,0);
       lcd.print("Access Denied...");
       delay(1000);
       lcd.clear();
       lcd.setCursor(0,0);
       lcd.print("Wait some time");
       lcd.setCursor(0,1);
       lcd.print("Request pending");
       delay(200);
       Blynk.virtualWrite(V0, "Access Denied" );
       flag=1;
      }
}

BLYNK(V1)
{
 Process wifiCheck;  // initialize a new process

 wifiCheck.runShellCommand("/usr/bin/pretty-wifi-info.lua");  // command y

 // while there's any characters coming back from the
 // process, print them to the serial monitor:
 while (wifiCheck.available() > 0) {
  char c = wifiCheck.read();
  SerialUSB.print(c);
 }

 SerialUSB.println();

 delay(5000);
```