1. INTRODUCTION

At present generation, wireless technology is adopted and used widely in every industrial and educational sector. In recent years, IoT play a major role in industrial area especially in automation and control sector. At present condition time is very important in everyone's life. Automation technology is used in various applications. In our project the main motive is to design an automatic bell ringing system and its implementation. In recent days schools and college bells are Automatically operated but this project is IOT based automatic system which control or accuses the system in different places and different time.

1.1 Embedded System:

As the name signifies, an embedded system is embedded or builds into something else. Embedded systems encompass a variety of hardware and software components, which perform specific functions in host system, for example satellites, washing machine, handled telephones and automobiles.

A few years ago, embedded technology existed in standalone devices such as vending machines and copiers that did their jobs with little regards for what went on around them. But as technology advance to connect devices to the internet and to each other, the potential of embedded technology has increased. Home appliances, mobile phones, cars, avionics etc.., are all using embedded technology. With the continuous economic growth, the water demand of enterprises is also increasing.

1.1 EMBEDDED SOFTWARE:

Software in the embedded system is implanted with either assembly language or any high level language. Now-a-days C and C++ has been the choice but language for the embedded software for the following reasons.

- ✓ C and C++ are machine independent language, so the programmer can concentrate only on the algorithms.
- ✓ C has the ability for direct hardware control and it can be interfaced to run any mechanical machine.

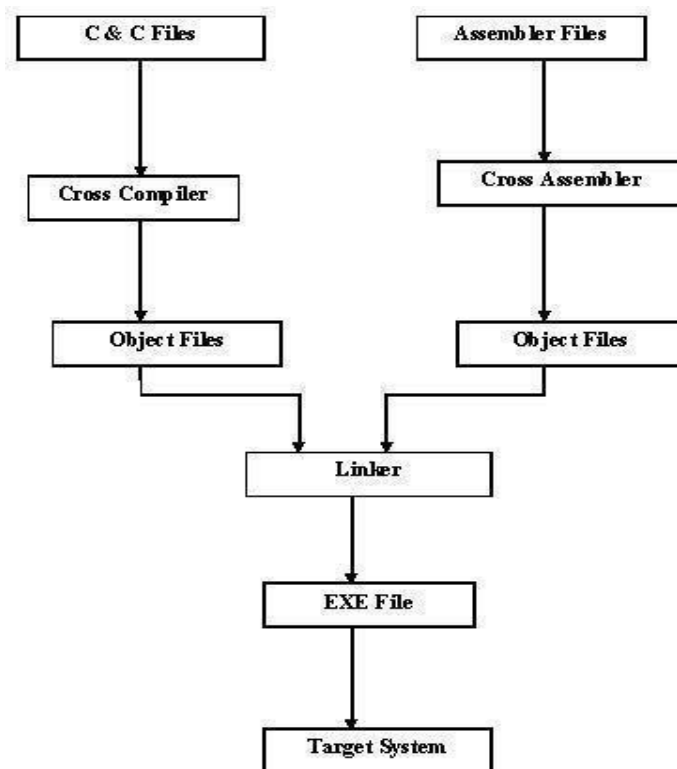The basic tool chain for the Embedded Software is given below.

Fig. 1.1 Basic tool chain for Embedded System

1.2 FEATURES OF IOT SYSTEM:

1. Higher performance
2. Low power consumption
3. Slimmer and more compact
4. Mission-critical functions
5. Reduced design and development time
6. Lower system cost.

1.3 APPLICATION AREAS OF EMBEDDED SYSTEM:

This article lets us understand the applications of IoT. The Internet of Things is not a mysterious hype anymore. It's a technology that has slowly gained momentum and is now silently shaping our future. IoT is the result of humankind's curiosity and intention to lead a convenient and connected lifestyle, reducing labor and eliminating the chances of human errors. That's why we decided to make devices smart and take care of things that will draw out efficiency. We've figured out that data is the new currency, and tons of crucial concerns can be addressed and resolved through data, and this is what drives the concept of the Internet of Things.

- ✓ Automotive
- ✓ Smart City
- ✓ Self-driven Cars
- ✓ Data communication

CHAPTER 2

2.1 PROPOSED SYSTEM:

The proposed system is establishing a An automatic bell ringing system is an electronic circuit which is used for automatic ringing of bell as per the given schedule without any human application. The primary aim of this project is to eliminate human intervention in the bell ringing process. The objective of our project is to construct an automatic bell system at low cost and robust model that could last for years with the least maintenance.

2.1.1 ADVANTAGES:

- Timing can be edited authorized Person

- Timing can be edited more number of times

- Its provide the more security

- Needed implementation for Institutions
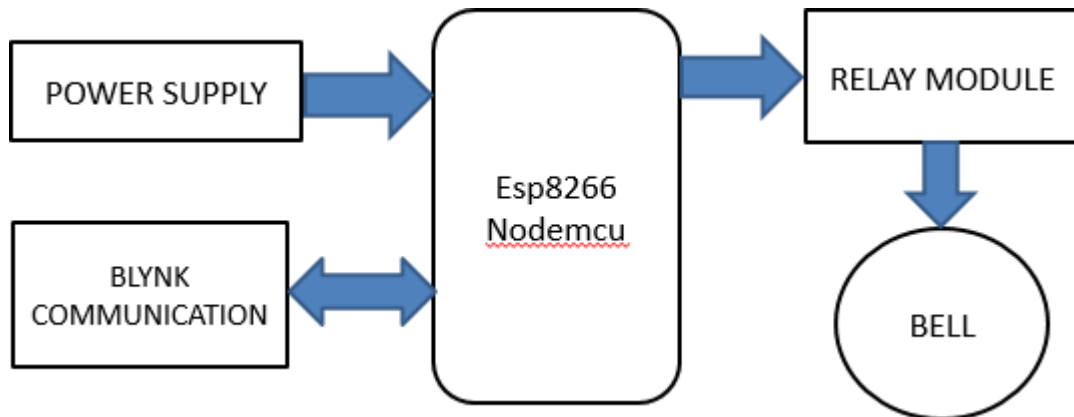
CHAPTER 3

3. 1. BLOCK DIAGRAM:

Fig 3.1 Block diagram of working system

The Microcontroller used in the project is ESP8266. This Part is the Heart of the Project. It Checks for the time and activate a bell. An automatic bell ringing system is an electronic circuit which is used for automatic ringing of bell as per the given schedule without any human application. The primary aim of this project is to eliminate human intervention in the bell ringing process. The objective of our project is to construct an automatic bell system at low cost and robust model that could last for years with the least maintenance.

CHAPTER 4

4. BLOCK DIAGRAM EXPLANATION:
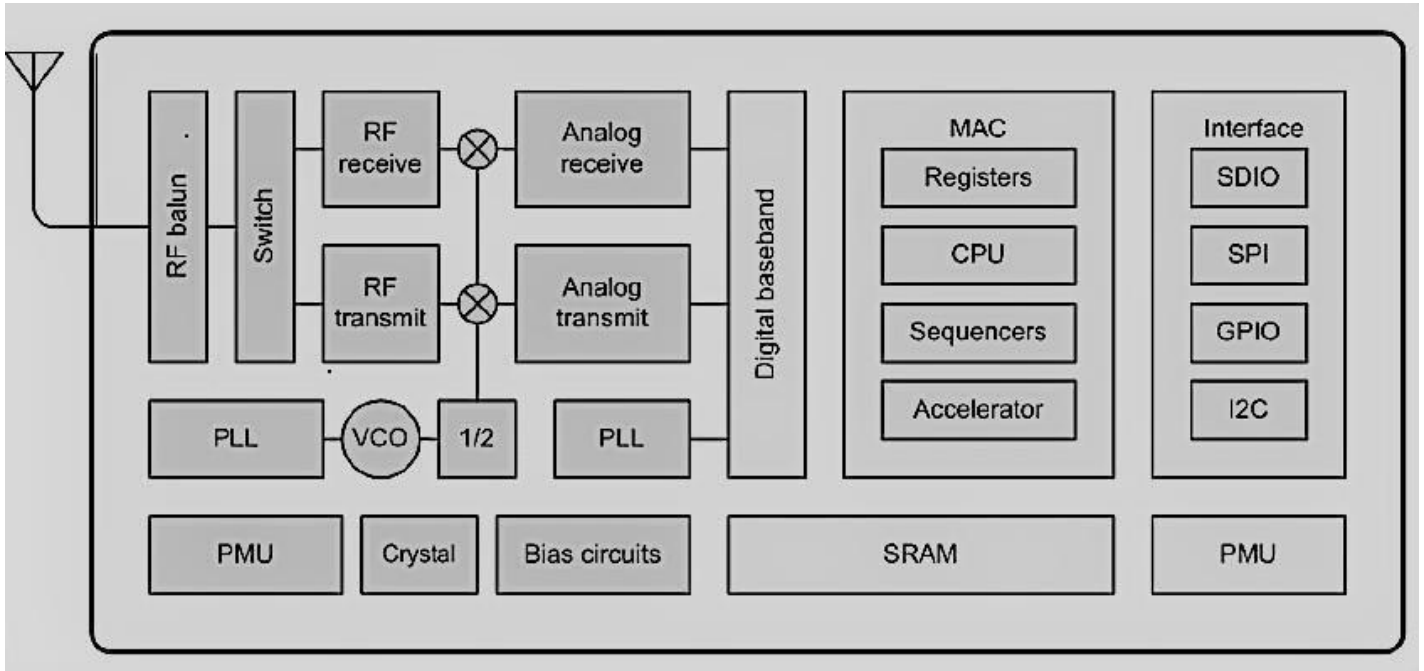
4.1 Block Diagram for Nodemcu (esp8266)

Fig 4.1 Nodemcu Block Diagram
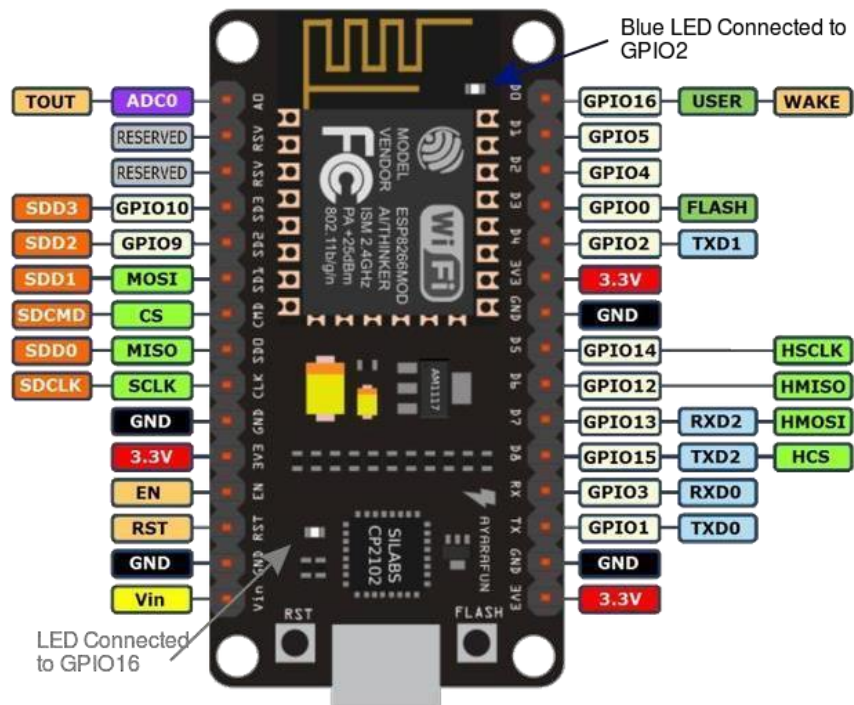
4.2 PIN DIAGRAM:

Fig 4.2 Pin Diagram
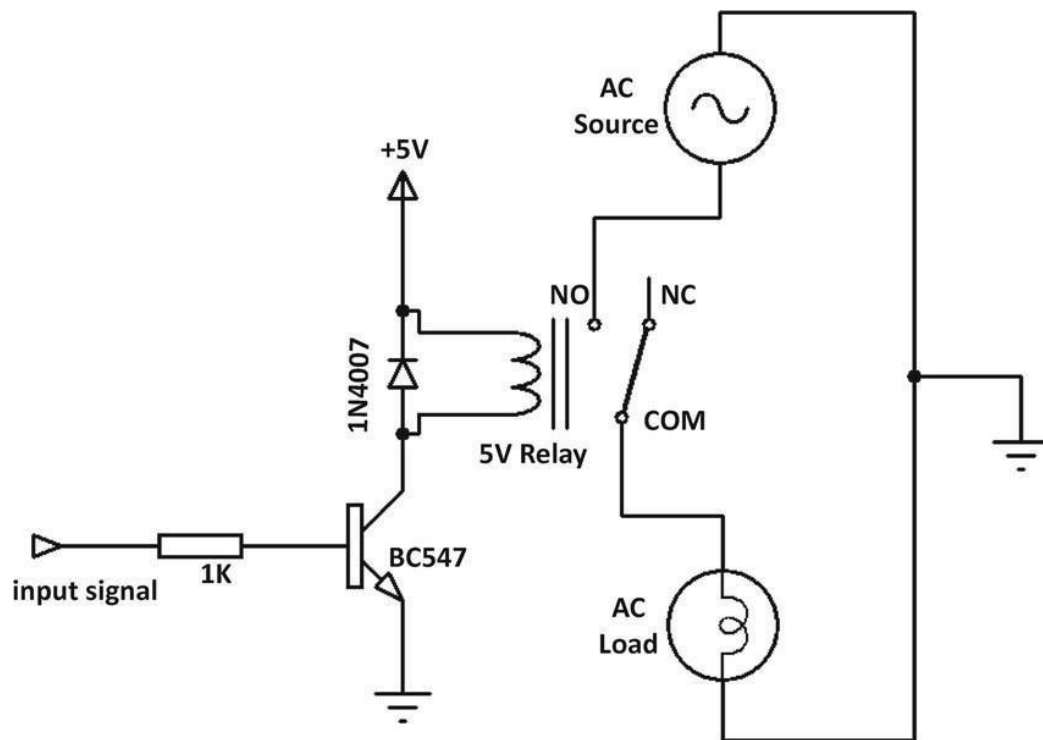
4.3 RELAY CIRCUIT :

Fig 4.3 Relay Circuit Diagram
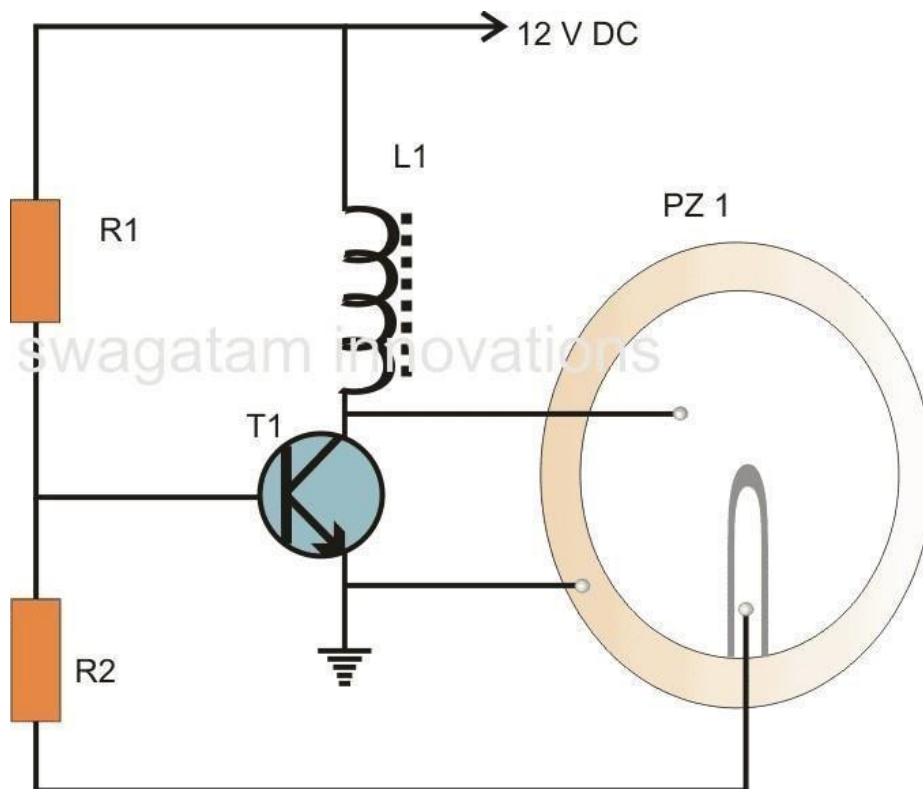
4.4 Buzzer Circuit diagram :

Fig 4.4 Buzzer Circuit Diagram

Nodemcu(ESP8266):

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

Relay Working:

Relay is one kind of electro-mechanical component that functions as a switch.

The relay coil is energized by DC so that contact switches can be opened or closed. A single channel 5V relay module generally includes a coil, and two contacts like normally open (NO) and normally closed (NC). A 5v relay is an automatic switch that is commonly used in an automatic control circuit and to control a high-current using a low-current signal. The input voltage of the relay signal ranges from 0 to 5V.

Buzzer :

The vibrating disk in a magnetic buzzer is attracted to the pole by the magnetic field. When an oscillating signal is moved through the coil, it produces a fluctuating magnetic field which vibrates the disk at a frequency equal to that of the drive signal.
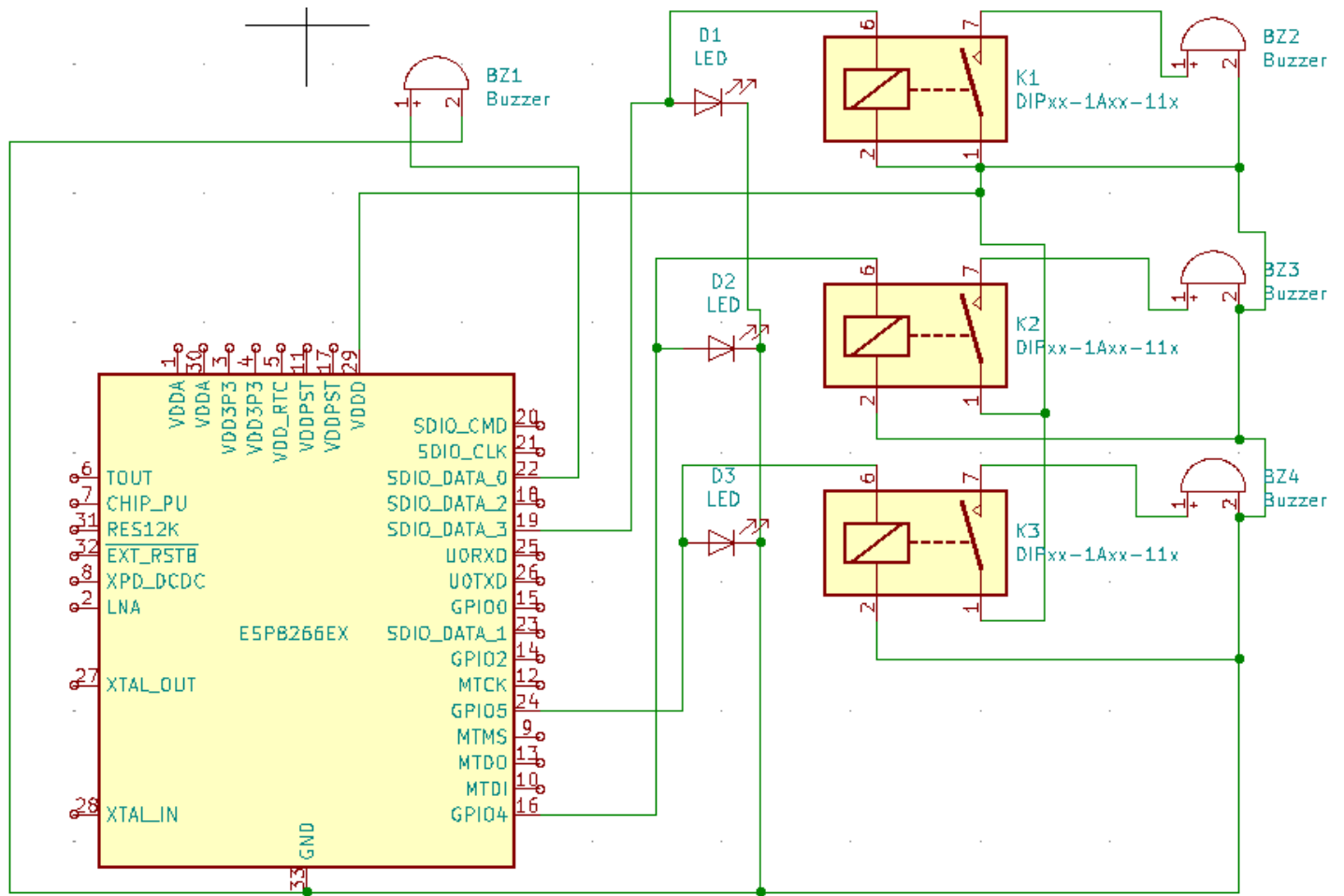
CHAPTER 5

5. CIRCUIT DIAGRAM:

Fig 5 Circuit Diagram

CHAPTER 6

6. SOFTWARE DESCRIPTION:

6.1 Blynk software:

Blynk platform powers low-batch manufacturers of smart home products, complex HVAC systems, agricultural equipment, and everyone in between. Everything you need to build and manage connected hardware: device provisioning, sensor data visualization, remote control with mobile and web applications, Over-The-Air firmware updates, secure cloud, data analytics, user and access management, alerts, automations and much much more...,

(1) Access to a network wifi to control the device from a Blynk app

(2) Access to Blynk servers to ensure the time of the device was always.

(3) Timers to sound the bell ring each change of class

(4) Schedule holidays and weekends to prevent the ring bell from ringing

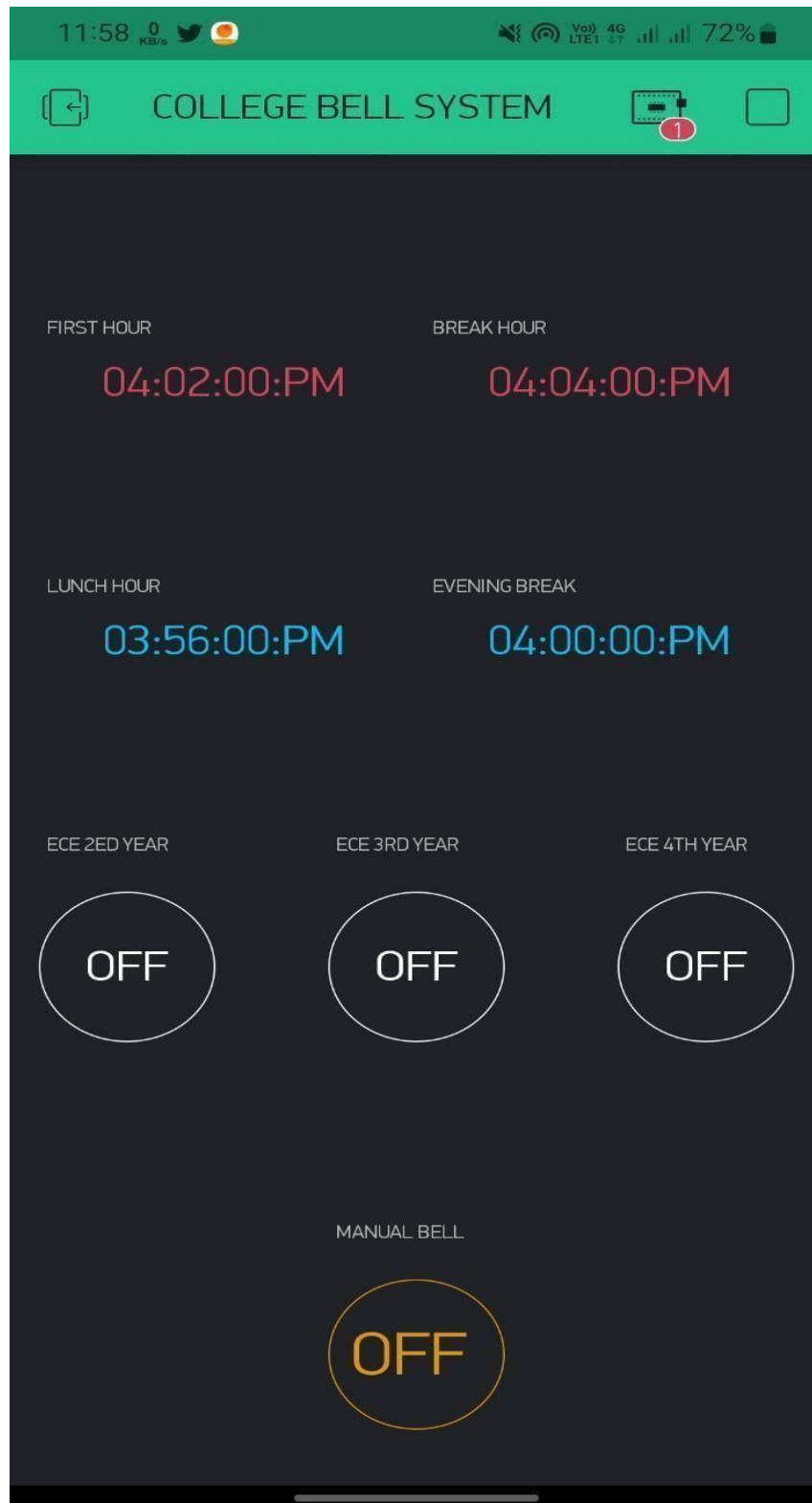(5) It doesn´t use batteries to maintain the configuration because it is stored.

CHAPTER 7

7. CONCLUTION AND FUTURES ENHANCEMENT

7.1 PROJECT IMPLEMENTATION PICTURE:
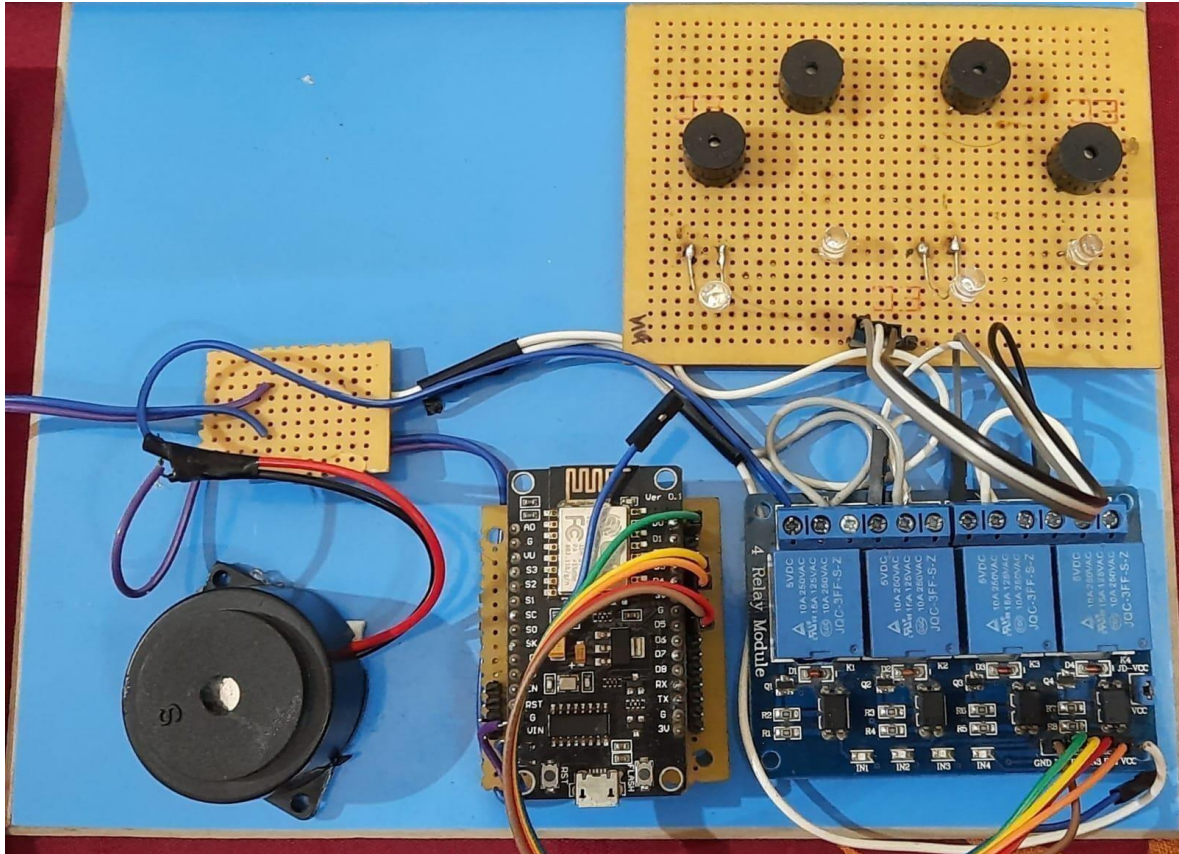
7.2 HARDWARE   OUTPUT

CONCLUSION

Present-day ringing the bell in colleges or schools are carried out semi-automatic system. The main disadvantage of this is that one person has to be alert for this. At the same time, another task could not be engaged. To overcome these problems, we have decided to prepare the circuit which will be operated automatically and the ringing of the bell will start by its own time. The time input could be edited as per requirements. This circuit is elementary to prepare and uncomplicated to install. We can say that it will be much useful for colleges or schools or other educational sectors.

FUTURE WORK

In this design, more advancement and upgrades can be done. The timings can only be edited by an authorized person. Another advantage is that the timings can be edited more number of times as per their wish. Another advantage is that the timing can be edited more number of times as per their wish. Another advantage is that it provides security since it used a password. It can also be made by using GSM. Through GSM. Through GSM, the RTC can be controlled and so the timings can be edited.

APPENDIX

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


// You should get Auth Token in the Blynk App.
// Go to the Project Settings (nut icon).
char auth[] = "vrM_Fq2hN8YL4DNl6rNmx95fomEGOqAu";//Enter your Auth token
char ssid[] = "google";//Enter your WIFI name
char pass[] = "google12345";//Enter your WIFI password
void setup()
{
  // Debug console
  Serial.begin(9600);


  Blynk.begin(auth, ssid, pass);
  // You can also specify server:
  //Blynk.begin(auth, ssid, pass, "blynk-cloud.com", 80);
  //Blynk.begin(auth, ssid, pass, IPAddress(192,168,1,100), 8080);
}


void loop()
{
  Blynk.run();
  // You can inject your own code or combine it with other sketches.
  // Check other examples on how to communicate with Blynk. Remember
  // to avoid delay() function!
}
```

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