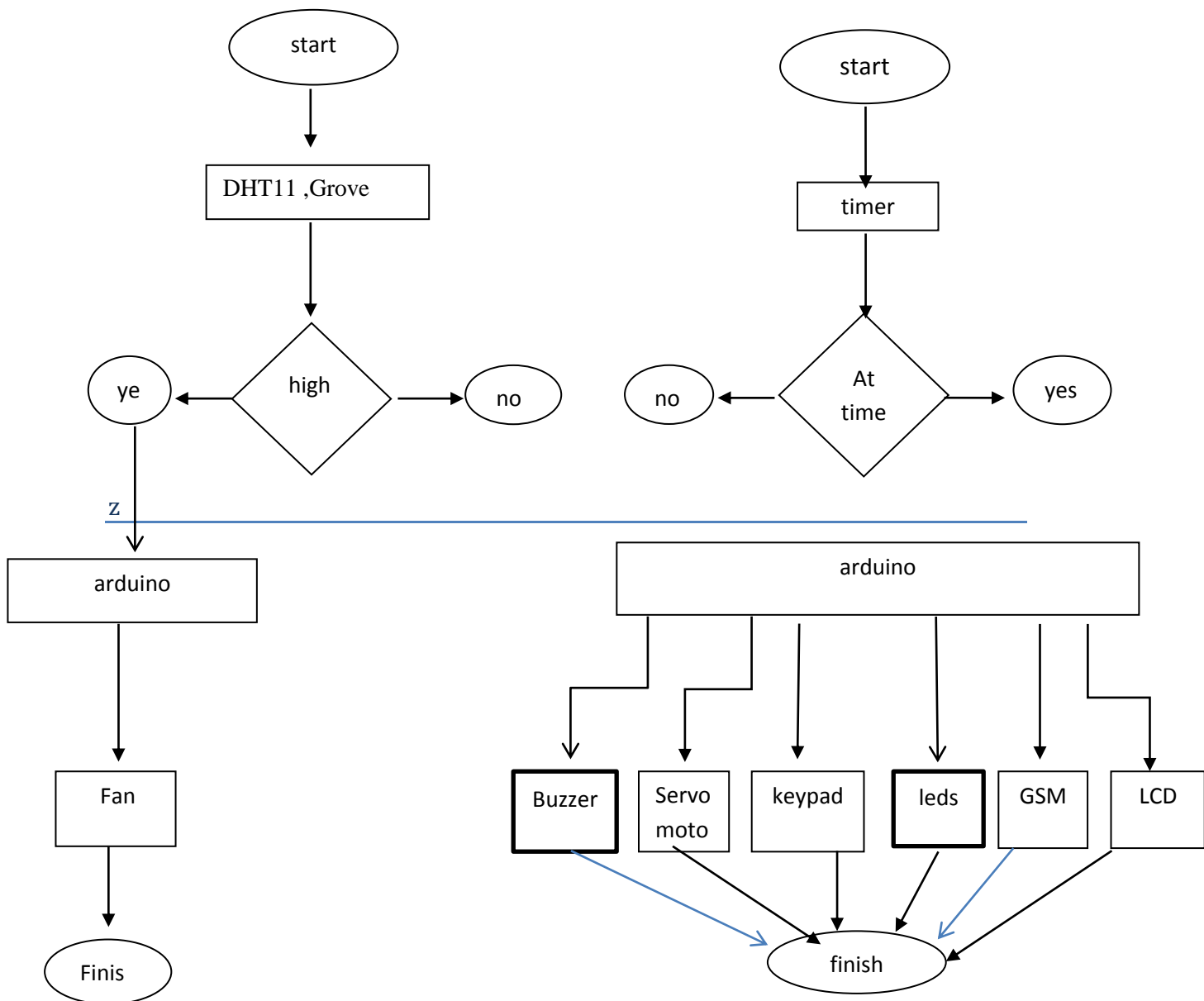


Chapter 6

Software of the Pharmacy circuit

6.1 Flow chart.

In this chapter first standard and software requirement of smart home pharmacy circuit .



6.2 Software principle.

```
/* ----- C Program for Arduino based Alarm Clock ---- */

// https://circuitdigest.com/microcontroller-projects/arduino-alarm-clock

/*****/

#include<EEPROM.h>

#include <Wire.h>

#include <RTClib.h>

int add_A=11, add_B=55 , add_C=80, add_D=100; // EEPROM ADDRESSEE

String time_HA ,time_MA,time_HB ,time_MB,time_HC ,time_MC,time_HD
,time_MD;

int HOUR,MINUT,SECOND;

int HA,MA,HB,MB,HC,MC,HD,MD;

int temp,inc;

int hours1_A,minut_A, hours1_B,minut_B, hours1_C,minut_C, hours1_D,minut_D;

boolean alarm_A_Activated = false;

boolean alarm_B_Activated = false;

boolean alarm_C_Activated = false;

boolean alarm_D_Activated = false;

//boolean passChanged = false;

int screenOffMsg =0;

char whichKey;

boolean activated = false;

char keypressed;

/*****/

#include <LiquidCrystal.h>
```

```

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

RTC_DS1307 RTC;

#define buzzer 12

/*****

#include <Keypad.h>

const byte ROWS = 4; //four rows

const byte COLS = 4; //four columns

//define the symbols on the buttons of the keypads

char keyMap[ROWS][COLS] =

{

    {'1','2','3','A'},

    {'4','5','6','B'},

    {'7','8','9','C'},

    {'*','0','#','D'}

};

byte rowPins[ROWS] = {22, 23, 24, 25}; //Row pinouts of the keypad

byte colPins[COLS] = {26, 27, 28, 29}; //Column pinouts of the keypad

Keypad myKeypad = Keypad( makeKeymap(keyMap), rowPins, colPins, ROWS,
COLS);

boolean AlarmChanged = false;

int redLED =51; // Invalid Key detection

*****/

//define the DHTXX Temperature & Humidity Sensor

#include <dht.h>

dht DHT;

int fan= 53;

#define DHT11_PIN 50

```

```

// Complete project details

//at http://randomnerdtutorials.com

#include <SoftwareSerial.h>

SoftwareSerial SIM900(7, 8); // Configure software serial port

/*****

#include <Servo.h>

Servo servo_A ,servo_B ,servo_C, servo_D; // create servo object to control a servo

// twelve servo objects can be created on most boards

int pos = 0; // variable to store the servo position

*****/

// Room LED

#define room_A 32

#define room_B 33

#define room_C 34

#define room_D 35

/*****

String tempPassword;

boolean Password_Acti = false;

String password="1234";

String medPassword ="7896";

String message, message_A, message_B, message_C, message_D;

*****/

//Medicine Counter Variable

int Count_A =10;

int Count_B =10;

int Count_C =10;

```

```

int Count_D =10;

/*****/

//RGB IED PIN'S Distribution

int R_A =36 ,G_A =37 ,B_A = 38;

int R_B =39 ,G_B =40 ,B_B = 41;

int R_C =42 ,G_C =43 ,B_C = 44;

int R_D =45 ,G_D =46 ,B_D = 47;


void setup()

{

    Wire.begin();

    RTC.begin();

    lcd.begin(16,2);

    pinMode(buzzer, OUTPUT);

    pinMode(redLED, OUTPUT);

    pinMode(fan, OUTPUT);

/*****/

// define pin's (32 -35) as OutPut for Room Lighting

for (int R =32;R<=35;R++)

{

    pinMode(R, OUTPUT);

}

/*****/

// define pin's (32 -35) as OutPut for RGB IED PIN'S

for (int R =36;R<=44;R++)

{

    pinMode(R, OUTPUT);

```

```

    }

/*****/

tone(buzzer, 2000, 300);

lcd.setCursor(0, 0);

lcd.print("  Welcome");

delay(3000);

tone(buzzer, 2000, 100);

lcd.setCursor(0,0);

lcd.print("Design of smart");

lcd.setCursor(0,1);

lcd.print(" home pharmacy");

delay(3000);

tone(buzzer, 2000, 100);

lcd.setCursor(0,0);

lcd.print(" Bayan drabey");

lcd.setCursor(0,1);

lcd.print("Fatima Yasser");

delay(3000);

tone(buzzer, 2000, 100);

lcd.setCursor(0,0);

lcd.print(" Supervisor :");

lcd.setCursor(0,1);

lcd.print("Mr. Ali Amro");

delay(2500);

/*****/

// Automatically turn on the shield

// Connect D9 on the shield to the D9 Arduino pin

```

```

digitalWrite(9, HIGH);

delay(1000);

digitalWrite(9, LOW);

delay(5000);

// Arduino communicates with SIM900 GSM shield at a baud rate of 19200

// Make sure that corresponds to the baud rate of your module

SIM900.begin(19200);

// Give time to your GSM shield log on to network

delay(2000);

/*****/

if(!RTC.isrunning())

{

    RTC.adjust(DateTime(__DATE__, __TIME__));

}

/*****/

// Attaches the servo on pin'S (2-5)to the servo object

servo_A.attach(2);

servo_B.attach(3);

servo_C.attach(4);

servo_D.attach(5);

/*****/

}

/*****/

void loop()

{

```

```

int temp=0,val=1,temp4; // New parameter

DateTime now = RTC.now();

/***** to check if Temp. > 27 *****/

int chk = DHT.read11(DHT11_PIN);

if( DHT.temperature >= 27)
{
    digitalWrite (fan,HIGH);
}

if (DHT.temperature < 27)
{
    digitalWrite (fan,LOW);
}

/***** Invalid Key! *****/

char whichKey = myKeypad.getKey();

if( whichKey == '0' || whichKey == '1' || whichKey == '2' || whichKey == '3' ||
    whichKey == '4' || whichKey == '5' || whichKey == '6' || whichKey == '7' ||
    whichKey == '8' || whichKey == '9' || whichKey == '#' || whichKey == '*' )
{

    tone(buzzer, 300, 100);

    lcd.clear();

    lcd.setCursor(0, 0);

    lcd.print(" Invalid Key!");

    digitalWrite(redLED, HIGH);

    delay(800);

    digitalWrite(redLED, LOW);

    lcd.clear();

```



```

}

/***** AAAA *****/

if (whichKey == 'A')
{
    tone(buzzer, 2000, 100);

    lcd.clear();

    lcd.setCursor(0,0);

    lcd.print(" Set Alarm Time ");

    default();    // is a function to display time on LCD

    delay(1300);

    /*****/

    lcd.clear();

    lcd.setCursor(0,0);

    lcd.print("A -T.Medicine #1");

    lcd.setCursor(0,1);

    lcd.print("B -T.Medicine #2");

    delay (2000);

    lcd.clear();

    lcd.setCursor(0,0);

    lcd.print("C -T.Medicine #3");

    lcd.setCursor(0,1);

    lcd.print("D -T.Medicine #4");

    delay (1500);

    /*****/

    Time_medicine (); // function to set alarm time

    delay(500);

    lcd.clear();

```

```

    lcd.setCursor(0,0);

    lcd.print(" Alarm time ");

    lcd.setCursor(0,1);

    lcd.print(" has been set ");

    delay(2000);

}

/***** BBBB *****/

if ( whichKey =='B')

{

    tone(buzzer, 2000, 100);

    lcd.clear();

    lcd.setCursor(0,0);

    lcd.print(" Medicine");

    lcd.setCursor(0,1);

    lcd.print(" Name and Date");

    delay(2500);

    medicine();

}

/***** CCCCC *****/

if (whichKey =='C')

{

    tone(buzzer, 2000, 100);

    bool Hum =true;

    int Temp =1;

    while (Hum)

    {

        lcd.clear();

```



```

{
    tone(buzzer, 2000, 100);

    lcd.clear();

    lcd.setCursor(0,0);

    lcd.print("  Time Alarm ");

    lcd.setCursor(0,1);

    lcd.print("  for Medicine");

    delay(2500);

    Display();
}

/***** passworld *****/

if ( whichKey == '*' )

{
    tone(buzzer, 2000, 100);

    delay(1500);

    enterPassword();
}

/***** Display of Time all the Time *****/

lcd.clear();

lcd.setCursor(0,0);

lcd.print("Time:");

lcd.setCursor(6,0);

lcd.print(HOUR=now.hour(),DEC);

lcd.print(":");

lcd.print(MINUT=now.minute(),DEC);

lcd.print(":");

lcd.print(SECOND=now.second(),DEC);

```

```

lcd.setCursor(0,1);

lcd.print("Date: ");

lcd.print(now.day(),DEC);

lcd.print("/");

lcd.print(now.month(),DEC);

lcd.print("/");

lcd.print(now.year(),DEC);

match_A();

match_B();

match_C();

match_D();

counter_A (Count_A);

counter_B (Count_B);

counter_C (Count_C);

counter_D (Count_D);

delay(300);

}

```

```

/*****??? Function *****/

/*****/

// functon to display time on LCD

void default()

{

    lcd.setCursor(3,1);

    lcd.print(HOUR);

```

```

    lcd.print(":");

    lcd.print(MINUT);

    lcd.print(":");

    lcd.print(SECOND);

    delay (1300);

}

/*****

/* function to buzzer indication */

void beep()

{

    tone(buzzer, 2000, 500); // Send 1KHz sound signal

    delay(100);

    tone(buzzer, 2000, 500); // Send 1KHz sound signal

    delay(100);

}

*****/

/*Function to set alarm time and feed time into Internal EEPROM*/

void time_A(int H,int M )

{

    if(H >=24)

    {

        H=0;

    }

    if(M >=60)

    {

        M=0;

    }

}

```

```

    lcd.clear();

    lcd.setCursor(0,0);

    lcd.print("Set Alarm Time ");

    lcd.setCursor(0,1);

    lcd.print(H);

    lcd.print(":");

    lcd.print(M);

    lcd.print(":");

    lcd.print(00);

    delay(10);


    hours1_A=H;

    EEPROM.write(add_A++,hours1_A);

    minut_A=M;

    EEPROM.write(add_A++, minut_A);

    temp=0;

    delay(2000);

}

/*****/

void time_B(int H,int M )
{
    if(H >=24)
    {
        H=0;
    }

    if(M >=60)

```

```

{
    M=0;
}

lcd.clear();

lcd.setCursor(0,0);

lcd.print("Set Alarm Time ");

lcd.setCursor(0,1);

lcd.print(H);

lcd.print(":");

lcd.print(M);

lcd.print(":");

lcd.print(00);

delay(10);

hours1_B=H;

EEPROM.write(add_B++,hours1_B);

minut_B=M;

EEPROM.write(add_B++, minut_B);

temp=0;

delay(2000);
}

/*****/

void time_C(int H,int M )

{

    if(H >=24)

    {

```



```

    H=0;

}

if(M >=60)

{
    M=0;
}

lcd.clear();

lcd.setCursor(0,0);

lcd.print("Set Alarm Time ");

lcd.setCursor(0,1);

lcd.print(H);

lcd.print(":");

lcd.print(M);

lcd.print(":");

lcd.print(00);

delay(10);


hours1_C=H;

EEPROM.write(add_C++,hours1_C);

minut_C=M;

EEPROM.write(add_C++, minut_C);

temp=0;


delay(2000);

}

/*****/

void time_D(int H,int M )

```

```

{
    if(H >=24)
    {
        H=0;
    }
    if(M >=60)
    {
        M=0;
    }
    lcd.clear();
    lcd.setCursor(0,0);
    lcd.print("Set Alarm Time ");
    lcd.setCursor(0,1);
    lcd.print(H);
    lcd.print(":");
    lcd.print(M);
    lcd.print(":");
    lcd.print(00);
    delay(10);

    hours1_D=H;
    EEPROM.write(add_D++,hours1_D);
    minut_D=M;
    EEPROM.write(add_D++, minut_D);
    temp=0;
    delay(2000);
}

```

```

/*****/

// Function to detect alarm is occur

void match_A()

{
    int tem[17];

    for(int i=11;i<17;i++)
    {
        tem[i]=EEPROM.read(i);
    }

    if(HOUR == tem[11] && MINUT == tem[12])
    {
        alarm_A_Activated=true;

        lcd.clear();

        delay (10);

        for(int j=0;j<=17;j++)
        {
            beep();

            lcd.clear();

            lcd.setCursor(0,0);

            lcd.print("Time U'r medicine ");

            lcd.setCursor(1,1);

            lcd.print(">> # 1 ");

            beep();

            delay (500);

            digitalWrite(redLED, HIGH);

            delay(800);

            digitalWrite(redLED, LOW);
        }
    }
}

```

```

        delay (400);

    }

    digitalWrite(room_A,HIGH);

    //message_A =("Time your medicine #1.fatima yasser 7/12/2017");

    //sendSMS(message_A);

    delay(800);

    enterPassword();

}

}

/*****/

void match_B()

{

    int tem[61];

    for(int i=55;i<61;i++)

    {

        tem[i]=EEPROM.read(i);

    }

    if(HOUR == tem[55] && MINUT == tem[56])

    {

        alarm_B_Activated=true;

        lcd.clear();

        delay (10);

        for(int j=0;j<=17;j++)

        {

            beep();

            lcd.clear();

            lcd.setCursor(0,0);

```

```

    lcd.print("Time U'r medicine ");

    lcd.setCursor(1,1);

    lcd.print(">> # 2 ");

    beep();

    delay (500);

    digitalWrite(redLED, HIGH);

    delay(800);

    digitalWrite(redLED, LOW);

    delay (400);

}

digitalWrite(room_B,HIGH);

//message_B=("Time your medicine #2.walid isaed 1/12/2017");

//sendSMS(message_B);

delay(800);

enterPassword();

}

}

/*****/

void match_C()

{

    int tem[86];

    for(int i=80;i<86;i++)

    {

        tem[i]=EEPROM.read(i);

    }

    if(HOUR == tem[80] && MINUT == tem[81])

    {

```

```

alarm_C_Activated=true;

lcd.clear();

delay (10);

for(int j=0;j<=17;j++)
{
    beep();

    lcd.clear();

    lcd.setCursor(0,0);

    lcd.print("Time U'r medicine ");

    lcd.setCursor(1,1);

    lcd.print(">> # 3 ");

    beep();

    delay (500);

    digitalWrite(redLED, HIGH);

    delay(800);

    digitalWrite(redLED, LOW);

    delay (400);

}

digitalWrite(room_C,HIGH);

//message_C=("Time your medicine #3.walid isaed 29/11/2017");

//sendSMS(message_C);

delay(800);

enterPassword();

}

}

/*****/

void match_D()

```

```

{
    int tem[106];
    for(int i=100;i<106;i++)
    {
        tem[i]=EEPROM.read(i);
    }
    if(HOUR == tem[100] && MINUT == tem[101])
    {
        alarm_D_Activated=true;
        lcd.clear();
        delay (10);
        for(int j=0;j<=17;j++)
        {
            beep();
            lcd.clear();
            lcd.setCursor(0,0);
            lcd.print("Time U'r medicine ");
            lcd.setCursor(1,1);
            lcd.print(">> # 4 ");
            beep();
            delay (500);
            digitalWrite(redLED, HIGH);
            delay(800);
            digitalWrite(redLED, LOW);
            delay (400);
        }
        digitalWrite(room_D,HIGH);
    }
}

```

```

//message_D=("Time your medicine #4.walid isaed 29/11/2017");

//sendSMS(message_D);

delay(800);

enterPassword();

}

}

/*****/

//These function use to set alarm time (houre ,Minute)

// by using Kypade Buttons

void Time_medicine ()

{

tone(buzzer, 2000, 100);

bool Hum =true;

int Temp =1;

while (Hum)

{

char set_mad = myKeypad.getKey();

if( set_mad =='A')

{

for (int i = 11 ; i < 17 ; i++)

{

EEPROM.write(i, 0);

}

if( set_mad =='A')

{

bool time_HA_activated =false;

```



```

bool time_MA_activated =false;

tone(buzzer, 2000, 100);

bool tim = true;

while (tim)

{

    //String time_HA ,time_MA;

    int k=4;

    time_HA ="";

    time_MA ="";

    time_HA_activated = true;

    while (time_HA_activated)

    {

        lcd.clear();

        lcd.setCursor(0,0);

        lcd.print("ALARM Medicine#1");

        lcd.setCursor(0,1);

        lcd.print("H >>");


        keypressed = myKeypad.getKey();

        if (keypressed != NO_KEY)

        {

            if (keypressed == '0' || keypressed == '1' || keypressed == '2' ||
keypressed == '3' ||

                keypressed == '4' || keypressed == '5' || keypressed == '6' ||
keypressed == '7' ||

                keypressed == '8' || keypressed == '9' )

            {

                tone(buzzer, 2000, 100);

```

```

        time_HA += keypressed;

        lcd.setCursor(k,1);

        lcd.print(time_HA);

        k+1;

        HA =time_HA.toInt();

    }

}

if ( keypressed == '*')

{

    lcd.clear();

    lcd.setCursor(0,0);

    lcd.print("ALARM Medicine#1");

    lcd.setCursor(0,1);

    lcd.print("H >>");

    lcd.setCursor(4,1);

    lcd.print(HA);

    delay(1000);

    time_HA_activated=false;

}

if (keypressed == '#')

{

    time_HA_activated=false;

    //tim =false;

}

delay (60);

```

```

    }

    time_MA_activated = true;
    while(time_MA_activated)
    {
        lcd.clear();

        lcd.setCursor(0,0);

        lcd.print("ALARM Medicine#1");

        lcd.setCursor(0,1);

        lcd.print("M >>");


        keypressed = myKeypad.getKey();

        if (keypressed != NO_KEY)
        {
            if (keypressed == '0' || keypressed == '1' || keypressed == '2' ||
keypressed == '3' ||

                keypressed == '4' || keypressed == '5' || keypressed == '6' ||
keypressed == '7' ||

                keypressed == '8' || keypressed == '9' )
            {
                tone(buzzer, 2000, 100);

                time_MA += keypressed;

                lcd.setCursor(k,1);

                lcd.print(time_MA);

                k+1;

                MA =time_MA.toInt();

            }

        }
    }

```

```

if ( keypressed == '*')
{
    lcd.clear();
    lcd.setCursor(0,0);
    lcd.print("ALARM Medicine#1");
    lcd.setCursor(0,1);
    lcd.print("M >>");
    lcd.setCursor(4,1);
    lcd.print(MA);
    delay(1000);
    time_MA_activated=false;
}

if (keypressed =='#')
{
    time_MA_activated=false;
    //tim =false;
}

delay (60);
}

if (keypressed =='#')
{
    time_A (HA,MA );
    tim =false;
}
}
} }

```

```

/*****/

if( set_mad == 'B')
{
    for (int i = 55 ; i < 61 ; i++)
    {
        EEPROM.write(i, 0);
    }

    bool time_HB_activated = false;
    bool time_MB_activated = false;

    tone(buzzer, 2000, 100);

    bool tim = true;

    while (tim)
    {
        //String time_HB ,time_MB;

        int k=4;

        time_HB = "";
        time_MB = "";

        time_HB_activated = true;

        while (time_HB_activated)
        {
            lcd.clear();

            lcd.setCursor(0,0);

            lcd.print("ALARM Medicine#2");

            lcd.setCursor(0,1);

            lcd.print("H >>");

```

```

keypressed = myKeypad.getKey();

if (keypressed != NO_KEY)
{
    if (keypressed == '0' || keypressed == '1' || keypressed == '2' ||
keypressed == '3' ||
keypressed == '4' || keypressed == '5' || keypressed == '6' ||
keypressed == '7' ||
keypressed == '8' || keypressed == '9' )
    {
        tone(buzzer, 2000, 100);

        time_HB += keypressed;

        lcd.setCursor(k,1);

        lcd.print(time_HB);

        k+1;

        HB =time_HB.toInt();

    }

}

if ( keypressed == '*')
{

    lcd.clear();

    lcd.setCursor(0,0);

    lcd.print("ALARM Medicine#2");

    lcd.setCursor(0,1);

    lcd.print("H >>");

    lcd.setCursor(4,1);

    lcd.print(HB);

```

```

        delay(1000);

        time_HB_activated=false;

    }

    if (keypressed == '#')

    {

        time_HB_activated=false;

        //tim =false;

    }

    delay (60);

}

time_MB_activated = true;
while(time_MB_activated)
{

    lcd.clear();

    lcd.setCursor(0,0);

    lcd.print("ALARM Medicine#2");

    lcd.setCursor(0,1);

    lcd.print("M >>");


    keypressed = myKeypad.getKey();

    if (keypressed != NO_KEY)

    {

        if (keypressed == '0' || keypressed == '1' || keypressed == '2' ||
keypressed == '3' ||

        keypressed == '4' || keypressed == '5' || keypressed == '6' ||
keypressed == '7' ||

        keypressed == '8' || keypressed == '9' )

        {

```

```

        tone(buzzer, 2000, 100);

        time_MB += keypressed;

        lcd.setCursor(k,1);

        lcd.print(time_MB);

        k++;

        MB =time_MB.toInt();

    }

}

if ( keypressed == '*')

{

    lcd.clear();

    lcd.setCursor(0,0);

    lcd.print("ALARM Medicine#2");

    lcd.setCursor(0,1);

    lcd.print("M >>");

    lcd.setCursor(4,1);

    lcd.print(MB);

    delay(1000);

    time_MB_activated=false;

}

if (keypressed =='#')

{

    time_MB_activated=false;

    //tim =false;

}

```



```

        delay (60);
    }

    if (keypressed == '#')
    {
        time_B (HB,MB );
        tim =false;
    }
}

}

/*****/

if( set_mad == 'C')
{
    for (int i = 80 ; i < 86 ; i++)
    {
        EEPROM.write(i, 0);
    }

    bool time_HC_activated =false;
    bool time_MC_activated =false;
    tone(buzzer, 2000, 100);

    bool tim = true;
    while (tim)
    {
        //String time_HA ,time_MA;

        int k=4;

        time_HC ="";
        time_MC ="";

        time_HC_activated = true;

```

```

while (time_HC_activated)
{
    lcd.clear();

    lcd.setCursor(0,0);

    lcd.print("ALARM Medicine#3");

    lcd.setCursor(0,1);

    lcd.print("H >>");


    keypressed = myKeypad.getKey();

    if (keypressed != NO_KEY)

    {

        if (keypressed == '0' || keypressed == '1' || keypressed == '2' ||
keypressed == '3' ||

        keypressed == '4' || keypressed == '5' || keypressed == '6' ||
keypressed == '7' ||

        keypressed == '8' || keypressed == '9' )

        {

            tone(buzzer, 2000, 100);

            time_HC += keypressed;

            lcd.setCursor(k,1);

            lcd.print(time_HC);

            k+1;

            HC =time_HC.toInt();

        }

    }

    if ( keypressed == '*')

    {

```

```

        lcd.clear();

        lcd.setCursor(0,0);

        lcd.print("ALARM Medicine#3");

        lcd.setCursor(0,1);

        lcd.print("H >>");

        lcd.setCursor(4,1);

        lcd.print(HC);

        delay(1000);

        time_HC_activated=false;

    }

    if (keypressed == '#')

    {

        time_HC_activated=false;

        //tim =false;

    }

    delay (60);

}

time_MC_activated = true;

while(time_MC_activated)

{

    lcd.clear();

    lcd.setCursor(0,0);

    lcd.print("ALARM Medicine#3");

    lcd.setCursor(0,1);

    lcd.print("M >>");

```

```

keypressed = myKeypad.getKey();

if (keypressed != NO_KEY)
{
    if (keypressed == '0' || keypressed == '1' || keypressed == '2' ||
keypressed == '3' ||
    keypressed == '4' || keypressed == '5' || keypressed == '6' ||
keypressed == '7' ||
    keypressed == '8' || keypressed == '9' )
    {
        tone(buzzer, 2000, 100);

        time_MC += keypressed;

        lcd.setCursor(k,1);

        lcd.print(time_MC);

        k+1;

        MC =time_MC.toInt();

    }

}

if ( keypressed == '*')
{
    lcd.clear();

    lcd.setCursor(0,0);

    lcd.print("ALARM Medicine#3");

    lcd.setCursor(0,1);

    lcd.print("M >>");

    lcd.setCursor(4,1);

    lcd.print(MC);

    delay(1000);

```

```

        time_MC_activated=false;

    }

    if (keypressed == '#')

    {

        time_MC_activated=false;

        //tim =false;

    }

    delay (60);

}

if (keypressed == '#')

{

    time_C (HC,MC);

    tim =false;

}

}

}

```

/******

```

if( set_mad =='D')

{

    for (int i = 90 ; i < 96 ; i++)

    {

        EEPROM.write(i, 0);

    }

    bool time_HD_activated =false;

    bool time_MD_activated =false;

    tone(buzzer, 2000, 100);

```

```

bool tim = true;

while (tim)
{
    //String time_HA ,time_MA;

    int k=4;

    time_HD = "";
    time_MD = "";

    time_HD_activated = true;

    while (time_HD_activated)
    {
        lcd.clear();

        lcd.setCursor(0,0);

        lcd.print("ALARM Medicine#4");

        lcd.setCursor(0,1);

        lcd.print("H >>");


        keypressed = myKeypad.getKey();

        if (keypressed != NO_KEY)
        {
            if (keypressed == '0' || keypressed == '1' || keypressed == '2' ||
keypressed == '3' ||

                keypressed == '4' || keypressed == '5' || keypressed == '6' ||
keypressed == '7' ||

                keypressed == '8' || keypressed == '9' )
            {
                tone(buzzer, 2000, 100);

                time_HD += keypressed;

                lcd.setCursor(k,1);

```

```

        lcd.print(time_HD);

        k+1;

        HD =time_HD.toInt();

    }

}

if ( keypressed == '*')

{

    lcd.clear();

    lcd.setCursor(0,0);

    lcd.print("ALARM Medicine#4");

    lcd.setCursor(0,1);

    lcd.print("H >>");

    lcd.setCursor(4,1);

    lcd.print(HD);

    delay(1000);

    time_HD_activated=false;

}

if (keypressed =='#')

{

    time_HD_activated=false;

    //tim =false;

}

delay (60);

}

time_MD_activated = true;

while(time_MD_activated)

```

```

{
    lcd.clear();

    lcd.setCursor(0,0);

    lcd.print("ALARM Medicine#4");

    lcd.setCursor(0,1);

    lcd.print("M >>");


    keypressed = myKeypad.getKey();

    if (keypressed != NO_KEY)

    {

        if (keypressed == '0' || keypressed == '1' || keypressed == '2' ||
keypressed == '3' ||

        keypressed == '4' || keypressed == '5' || keypressed == '6' ||
keypressed == '7' ||

        keypressed == '8' || keypressed == '9' )

        {

            tone(buzzer, 2000, 100);

            time_MD += keypressed;

            lcd.setCursor(k,1);

            lcd.print(time_MD);

            k+1;

            MD =time_MD.toInt();

        }

    }

    if ( keypressed == '*')

    {

        lcd.clear();

```



```

        lcd.setCursor(0,0);

        lcd.print("ALARM Medicine#4");

        lcd.setCursor(0,1);

        lcd.print("M >>");

        lcd.setCursor(4,1);

        lcd.print(MD);

        delay(1000);

        time_MD_activated=false;

    }

    if (keypressed == '#')

    {

        time_MD_activated=false;

        //tim =false;

    }

    delay (60);

}

if (keypressed == '#')

{

    time_D (HD,MD );

    tim =false;

}

}

}

if (set_mad == '#')

{

    tone(buzzer, 2000, 100);

```

```

        Temp =0;

        Hum =false;

    }

}

}

}

/*****/

// This function for Temperature _humidity

//Read sensore value and display on LCD

void Temp_humidity ()

{

    int chk = DHT.read11(DHT11_PIN);

    lcd.clear();

    lcd.setCursor(0,0);

    lcd.print("Temp: ");

    lcd.print(DHT.temperature);

    lcd.print((char)223);

    lcd.print("C");

    lcd.setCursor(0,1);

    lcd.print("Humidity: ");

    lcd.print(DHT.humidity);

    lcd.print("%");

    delay(1400);

/*****/

//

```

```

if( DHT.temperature >= 27)
{
    digitalWrite (fan,HIGH);
}
if (DHT.temperature < 27)
{
    digitalWrite (fan,LOW);
}
}

/*****/

//This function Display : Name & Date medicine
void medicine ()
{
    tone(buzzer, 2000, 100);
    int med =1;
    if (med)
    {
        bool medicie =true;
        while (medicie)
        {
            whichKey = myKeypad.getKey();
            if (whichKey == 'A')
            {
                tone(buzzer, 2000, 100);
                lcd.clear();
                lcd.setCursor(0,0);
                lcd.print("Name:Ahmad ");
            }
        }
    }
}

```

```

    lcd.setCursor(0,1);

    lcd.print("Date: 12 ");

    delay (2000);

}

if (whichKey == 'B')

{

    tone(buzzer, 2000, 100);

    lcd.clear();

    lcd.setCursor(0,0);

    lcd.print("Name: mohammad ");

    lcd.setCursor(0,1);

    lcd.print("Date: 13 ");

    delay (2000);

}

if (whichKey == 'C')

{

    tone(buzzer, 2000, 100);

    lcd.clear();

    lcd.setCursor(0,0);

    lcd.print("Name: omar ");

    lcd.setCursor(0,1);

    lcd.print("Date: 14 ");

    delay (2000);

}

if (whichKey == 'D')

{

    tone(buzzer, 2000, 100);

```

```

    lcd.clear();

    lcd.setCursor(0,0);

    lcd.print("Name: jak ");

    lcd.setCursor(0,1);

    lcd.print("Date: 15 ");

    delay (2000);

}

if (whichKey == '#')

{

    tone(buzzer, 2000, 100);

    med =0;

    medicie =false;

}

}

}

}

/*****/

//This function Display : Time of medicine alarm

void Display()

{

    tone(buzzer, 2000, 100);

    int Dis =1;

    if (Dis)

    {

        bool Display =true;

```

```

while (Display)
{
    whichKey = myKeypad.getKey();
    if (whichKey == 'A')
    {
        tone(buzzer, 2000, 100);

        lcd.clear();

        lcd.setCursor(0,0);
        lcd.print("Time Medicine #1");
        lcd.setCursor(0,1);
        lcd.print("Date:");
        lcd.setCursor(6,1);
        lcd.print(HA);
        lcd.setCursor(8,1);
        lcd.print(":");
        lcd.print(MA);
        delay (2000);
    }
    if (whichKey == 'B')
    {
        tone(buzzer, 2000, 100);

        lcd.clear();

        lcd.setCursor(0,0);
        lcd.print("Time Medicine #2");
        lcd.setCursor(0,1);
        lcd.print("Date:");
        lcd.setCursor(6,1);
    }
}

```

```

    lcd.print(HB);

    lcd.setCursor(8,1);

    lcd.print(":");

    lcd.print(MB);

    delay (2000);

}

if (whichKey == 'C')

{

    tone(buzzer, 2000, 100);

    lcd.clear();

    lcd.setCursor(0,0);

    lcd.print("Time Medicine #3");

    lcd.setCursor(0,1);

    lcd.print("Date:");

    lcd.setCursor(6,1);

    lcd.print(HC);

    lcd.setCursor(8,1);

    lcd.print(":");

    lcd.print(MC);

    delay (2000);

}

if (whichKey == 'D')

{

    tone(buzzer, 2000, 100);

    int COUNT_H = EEPROM.read(11);

    int COUNT_M = EEPROM.read(12);

    int COUNT_B = EEPROM.read(55);

```

```
int COUNT_S = EEPROM.read(56);
```

```
int COUNT_q = EEPROM.read(80);
```

```
int COUNT_w = EEPROM.read(81);
```

```
int COUNT_e = EEPROM.read(100);
```

```
int COUNT_r = EEPROM.read(101);
```

```
lcd.clear();
```

```
lcd.setCursor(0,0);
```

```
lcd.print(COUNT_H);
```

```
lcd.setCursor(2,0);
```

```
lcd.print(":");
```

```
lcd.setCursor(3,0);
```

```
lcd.print(COUNT_M);
```

```
lcd.setCursor(6,0);
```

```
lcd.print("|");
```

```
lcd.setCursor(7,0);
```

```
lcd.print(COUNT_B);
```

```
lcd.setCursor(9,0);
```

```
lcd.print(":");
```

```
lcd.setCursor(10,0);
```

```
lcd.print(COUNT_S);
```

```
lcd.setCursor(0,1);
```

```
lcd.print(COUNT_q);
```

```
lcd.setCursor(2,1);
```

```
lcd.print(":");
```

```
lcd.setCursor(3,1);
```



```

    lcd.print(COUNT_w);

    lcd.setCursor(6,1);

    lcd.print("|");

    lcd.setCursor(7,1);

    lcd.print(COUNT_e);

    lcd.setCursor(9,1);

    lcd.print(":");

    lcd.setCursor(10,1);

    lcd.print(COUNT_r);

}

if (whichKey == '*')
{
    tone(buzzer, 2000, 100);

    lcd.clear();

    lcd.setCursor(0,0);

    lcd.print(Count_A);

    lcd.setCursor(3,1);

    lcd.print(Count_B);

    lcd.setCursor(6,0);

    lcd.print(Count_C);

}

if (whichKey == '#')
{
    tone(buzzer, 2000, 100);

    Dis =0;

    Display =false;

```

```

    }

}

}

}

/*****/

void sendSMS(String message)
{
    // AT command to set SIM900 to SMS mode

    SIM900.print("AT+CMGF=1\r");
    delay(100);

    // REPLACE THE X's WITH THE RECIPIENT'S MOBILE NUMBER
    // USE INTERNATIONAL FORMAT CODE FOR MOBILE NUMBERS
    SIM900.println("AT + CMGS = \"+972597362791\"");
    delay(100);

    // REPLACE WITH YOUR OWN SMS MESSAGE CONTENT
    SIM900.println(message);
    delay(100);

    // End AT command with a ^Z, ASCII code 26
    SIM900.println((char)26);
    delay(100);
    SIM900.println();

    // Give module time to send SMS

```

```

    delay(5000);

}

/*****/

//open correct room when alarme is occur and decrement

//medicine counter by one "1"


void your_time()

{

/*****Room # 1*****/

if (alarm_A_Activated)

{

    Password_Acti = false;

    lcd.clear();

    lcd.setCursor(0, 0);

    lcd.print(" Go to Room # 1");

    delay (2000);

    beep();

    /*****/

    // open room # 1

        servo_A.write(50);

        delay (5000);

    // Close room # 1

        servo_A.write(90);

        delay(15);


    /*****/

    delay(500);

```

```

    lcd.clear();

    Count_A--;

    digitalWrite(room_A,LOW);

    delay(500);

    alarm_A_Activated=false;

}

/*****Room # 2*****/

if (alarm_B_Activated)

{

    Password_Acti = false;

    lcd.clear();

    lcd.setCursor(0, 0);

    lcd.print(" Go to Room # 2");

    delay (2000);

    beep();

    /*****/

    // open room # 2

    for (pos = 0; pos <= 90; pos += 5)

    {

        servo_A.write(pos);

        delay(15);

    }

    delay (5000);

    // Close room # 2

    for (pos = 90; pos >= 0; pos -= 5)

    {

        servo_A.write(pos);

```

```

        delay(15);

    }

    /***/

    delay(500);

    lcd.clear();

    Count_B--;

    //counter ( Count_A,Count_B,Count_C);

    digitalWrite(room_B,LOW);

    delay(500);

    alarm_B_Activated=false;

}

/***/Room # 3*****/

if (alarm_C_Activated)

{

    Password_Acti = false;

    lcd.clear();

    lcd.setCursor(0, 0);

    lcd.print(" Go to Room # 3");

    delay (2000);

    beep();

    /***/

    // open room # 3

    servo_A.write(85);

    delay (5000);

    // Close room # 3

    servo_A.write(180);

```

```

    /*****/

    delay(500);

    lcd.clear();

    Count_C--;

    digitalWrite(room_C,LOW);

    delay(500);

    alarm_C_Activated=false;

}

}

/*****/

// Enter Password to Open room medicine

void enterPassword()

{

    tone(buzzer, 2000, 100);

    int k=5;

    tempPassword = "";

    Password_Acti = true;

    lcd.clear();

    lcd.setCursor(0,0);

    lcd.print(" Enter Password ");

    lcd.setCursor(0,1);

    lcd.print("Pass>");

    while(Password_Acti)

    {

        keypressed = myKeypad.getKey();

```

```

if (keypressed != NO_KEY)
{
    if (keypressed == '0' || keypressed == '1' || keypressed == '2' || keypressed == '3'
||
        keypressed == '4' || keypressed == '5' || keypressed == '6' || keypressed == '7' ||
        keypressed == '8' || keypressed == '9' )
    {
        tone(buzzer, 2000, 100);
        tempPassword += keypressed;
        lcd.setCursor(k,1);
        lcd.print("*");
        k++;
    }
}

if (k > 9 || keypressed == '#')
{
    tempPassword = "";
    k=5;
    lcd.clear();
    lcd.setCursor(0,0);
    lcd.print(" Enter Password ");
    lcd.setCursor(0,1);
    lcd.print("Pass>");
}

if ( keypressed == '*')
{
    if ( tempPassword == password )

```

```

{
    tone(buzzer, 2000, 100);
    lcd.clear();

    lcd.clear();
    lcd.setCursor(0, 0);
    lcd.print("Correct Password");
    lcd.setCursor(0, 1);
    lcd.print("Get U'r Medicin");
    delay (2000);
    your_time();
}

if (tempPassword == medPassword )
{
    tone(buzzer, 2000, 100);
    lcd.clear();
    lcd.clear();
    lcd.setCursor(0, 0);
    lcd.print("Correct Password");
    delay (1200);
    lcd.setCursor(0, 0);
    lcd.print("This to filling ");
    lcd.setCursor(0, 1);
    lcd.print(" Medicin in Box");
    delay (3000);

    /*****/

    servo_A.write(85); // open room # 1

```



```

servo_B.write(85);// open room # 2

servo_C.write(85);// open room # 3

servo_D.write(85);// open room # 4

delay (800);

if ( keypressed == '*')

{

servo_A.write(180);// CLOSE room # 1

servo_B.write(180);// CLOSE room # 2

servo_C.write(180);// CLOSE room # 3

servo_D.write(180);// CLOSE room # 4

delay (800);

}

else if (tempPassword != password)

{

lcd.setCursor(0,0);

lcd.print("Wrong! Try Again");

delay(2000);

lcd.clear();

lcd.setCursor(0,0);

lcd.print(" Enter Password ");

lcd.setCursor(0,1);

lcd.print("Pass>");

}

}

}

}

}

```

```

/*****/

// Counter function and RGB LED lighting

//Counter for room #1 *****/

void counter_A (int Count_A)

{
    if (Count_A >7 /*&& Count_A <=10*/ )
    {
        digitalWrite (G_A,HIGH);
        digitalWrite (R_A,LOW);
        digitalWrite (B_A,LOW);
    }
    if (Count_A >=4 && Count_A <=7 )
    {
        digitalWrite (B_A,HIGH);
        digitalWrite (G_A,LOW);
        digitalWrite (R_A,LOW);
    }
    if (Count_A >=0 && Count_A <=3 )
    {
        digitalWrite (R_A,HIGH);
        digitalWrite (G_A,LOW);
        digitalWrite (B_A,LOW);
    }
}

//Counter for room #2 *****/

void counter_B (int Count_B)

{

```

```

if (Count_B >7 && Count_B <=10 )
{
    digitalWrite (G_B,HIGH);
    digitalWrite (R_B,LOW);
    digitalWrite (B_B,LOW);
}
if (Count_B >=4 && Count_B <=7 )
{
    digitalWrite (B_B,HIGH);
    digitalWrite (G_B,LOW);
    digitalWrite (R_B,LOW);
}
if (Count_B >=0 && Count_B <=3 )
{
    digitalWrite (R_B,HIGH);
    digitalWrite (G_B,LOW);
    digitalWrite (B_B,LOW);
}
}

//Counter for room #3 *****
void counter_C (int Count_C)
{
    if (Count_C >7 && Count_C <=10 )
    {
        digitalWrite (G_C,HIGH);
        digitalWrite (R_C,LOW);
        digitalWrite (B_C,LOW);
    }
}

```

```

    }

    if (Count_C >=4 && Count_C <=7 )
    {
        digitalWrite (B_C,HIGH);
        digitalWrite (G_C,LOW);
        digitalWrite (R_C,LOW);
    }

    if (Count_C >=0 && Count_C <=3 )
    {
        digitalWrite (R_C,HIGH);
        digitalWrite (G_C,LOW);
        digitalWrite (B_C,LOW);
    }
}

//Counter for room #4 *****

void counter_D (int Count_D)
{
    if (Count_D >7 && Count_D <=10 )
    {
        digitalWrite (G_D,HIGH);
        digitalWrite (R_D,LOW);
        digitalWrite (B_D,LOW);
    }

    if (Count_D >=4 && Count_D <=7 )
    {
        digitalWrite (B_D,HIGH);
        digitalWrite (G_D,LOW);
    }
}

```

```
digitalWrite (R_D,LOW);  
}  
if (Count_D >=0 && Count_D <=3 )  
{  
digitalWrite (R_D,HIGH);  
digitalWrite (G_D,LOW);  
digitalWrite (B_D,LOW);  
}  
}
```

```
/******  
/
```