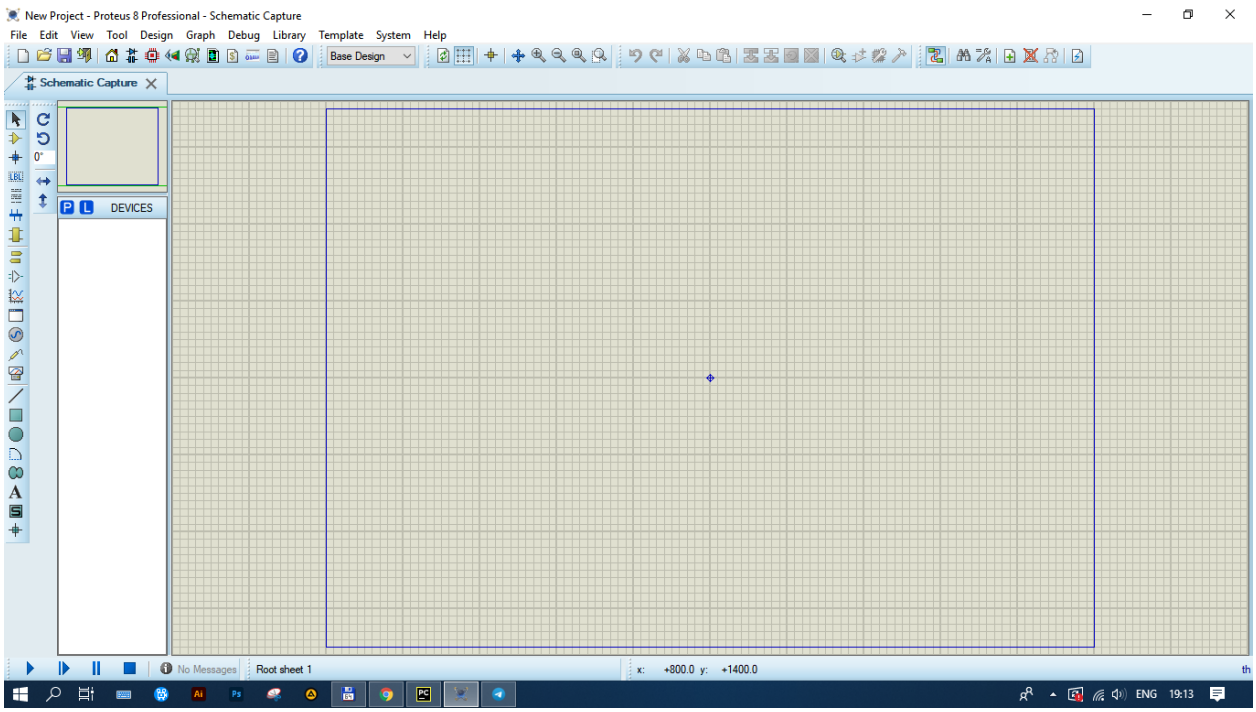
Mavzu: Smart eshik qulfi.

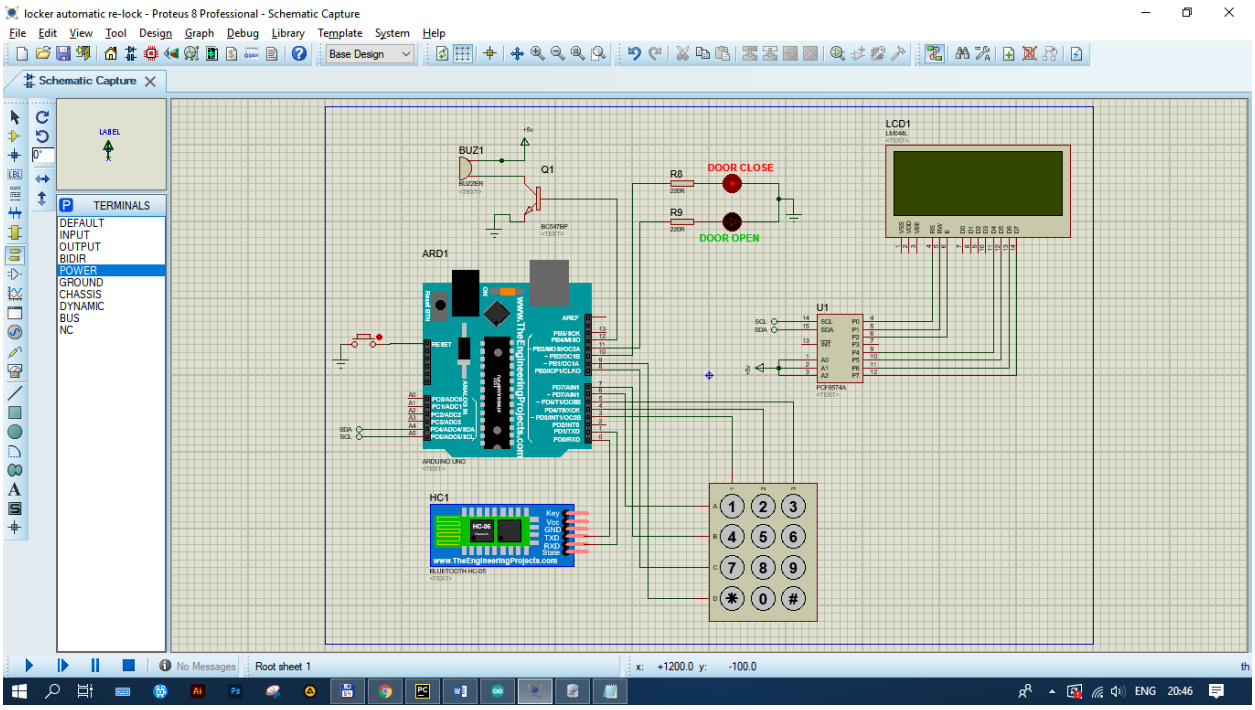


5.1 – rasm. Bosh oyna.

foydali komponentlarni shu joydan tanlab olamiz. Bizga kerak bo'ladigan komponetlar quyidagilar:

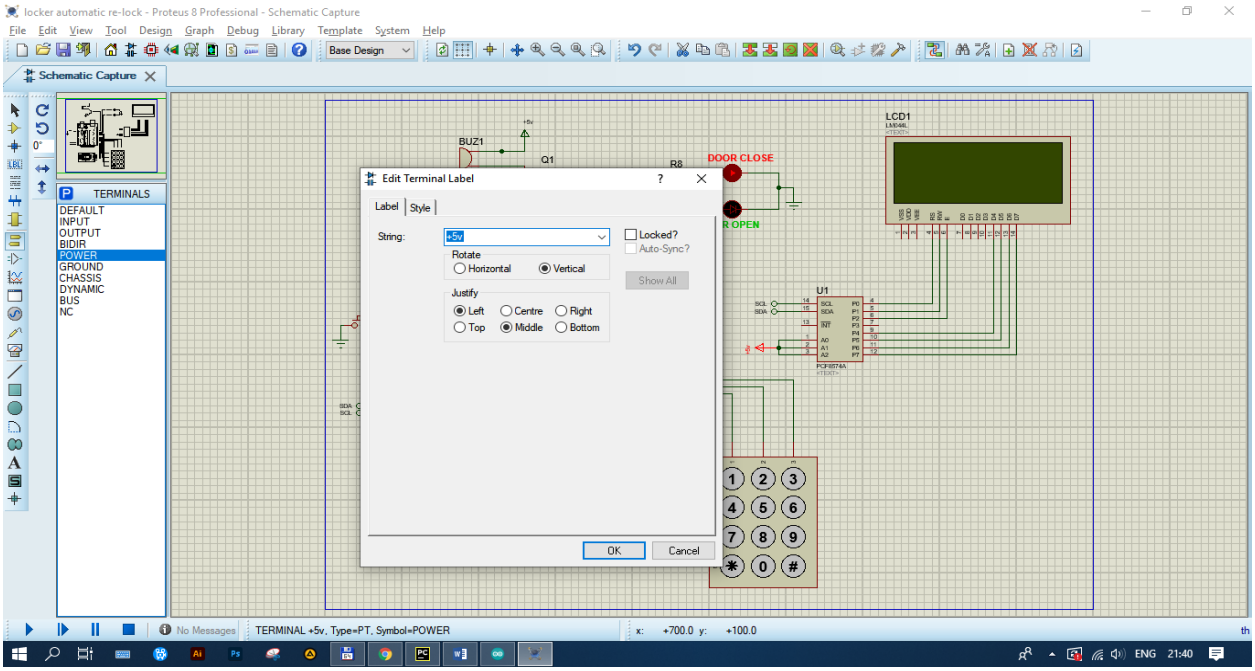
- Ikkita qarshilik. (Res 220R).
- Arduino Uno.
- Bluetooth.
- Tranzistor. (BC547BP).
- Tugma (Button).
- Signal tarqatgich (Buzzer).
- Telefon tugmalari (Keypad-phone).
- Ikkita led chiroq (Led).
- Monitor (LM044L).
- Micro sxema (PCF8574A).
- 5 voltlik kuchlanish (Power).
- Quvvat yutish uchun yer (Ground).

5 voltli kuchlanish va Graund shu bo'limdan olinadi. Komponentlarni birin ketin ishchi oynaga o'tkazib loyihamni yig'amiz.



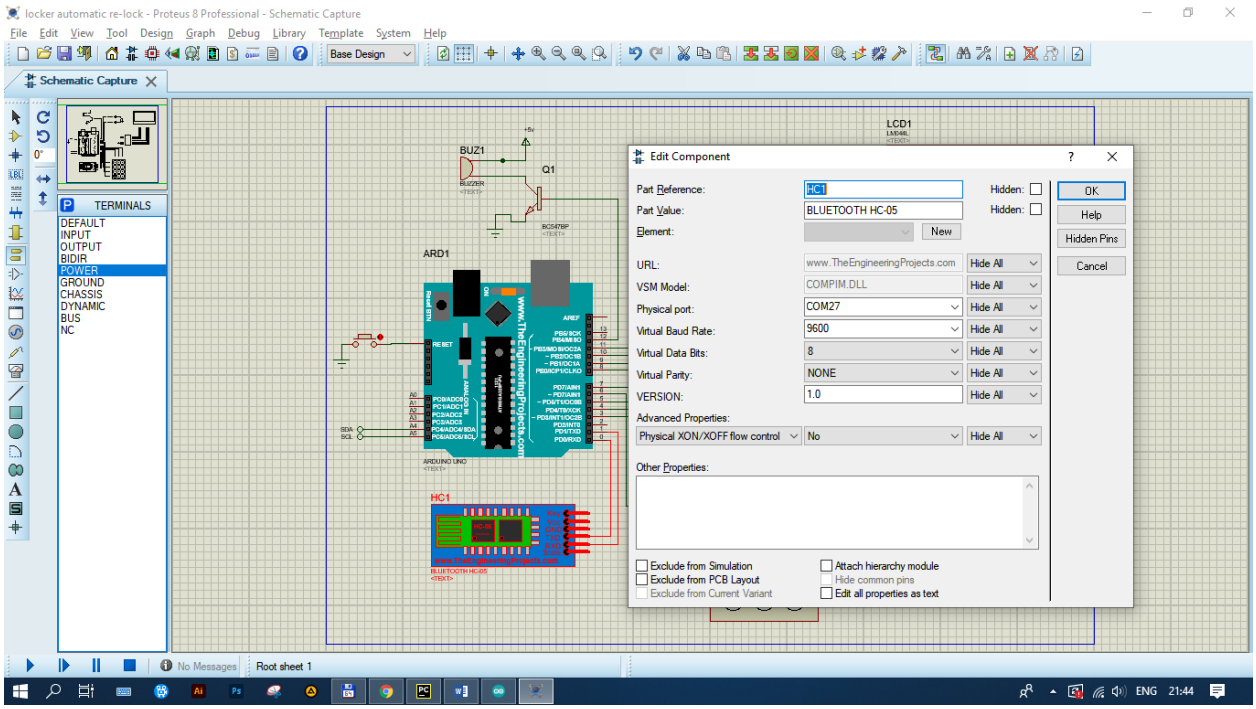
5.2 – rasm. Loyihaning yig'ilgan holati.

Loyiha yig'ib bo'lindi. Bu yerda **tugma** Arduino Uno qurulmasini o'chirib yoqish uchun. **Ledlar** eshik ochilib yopilgan holatdagi kombinatsiyani bildirish uchun. **Manitor** kiritilgan va qayta ishlanib chiqayotgan ma'lumotlarni ko'rsatish uchun. **Mikro sxema** manitorga Arduino Unodan chiqayotgan analog signalni manitorga moslashtirib yuborish uchun. **Signal beruvchi qurulma** ko'p marta hato terilgan parol haqida ogohlantirish berish uchun. **Bluetooth** simsiz ma'lumot almashinish uchun va Arduino Unoga buyruqlar yuborish uchun. **Telefon tugmalari** eshik ochilishi uchun kiritilish zarur bo'lgan parolni terish uchun ishlatiladi.



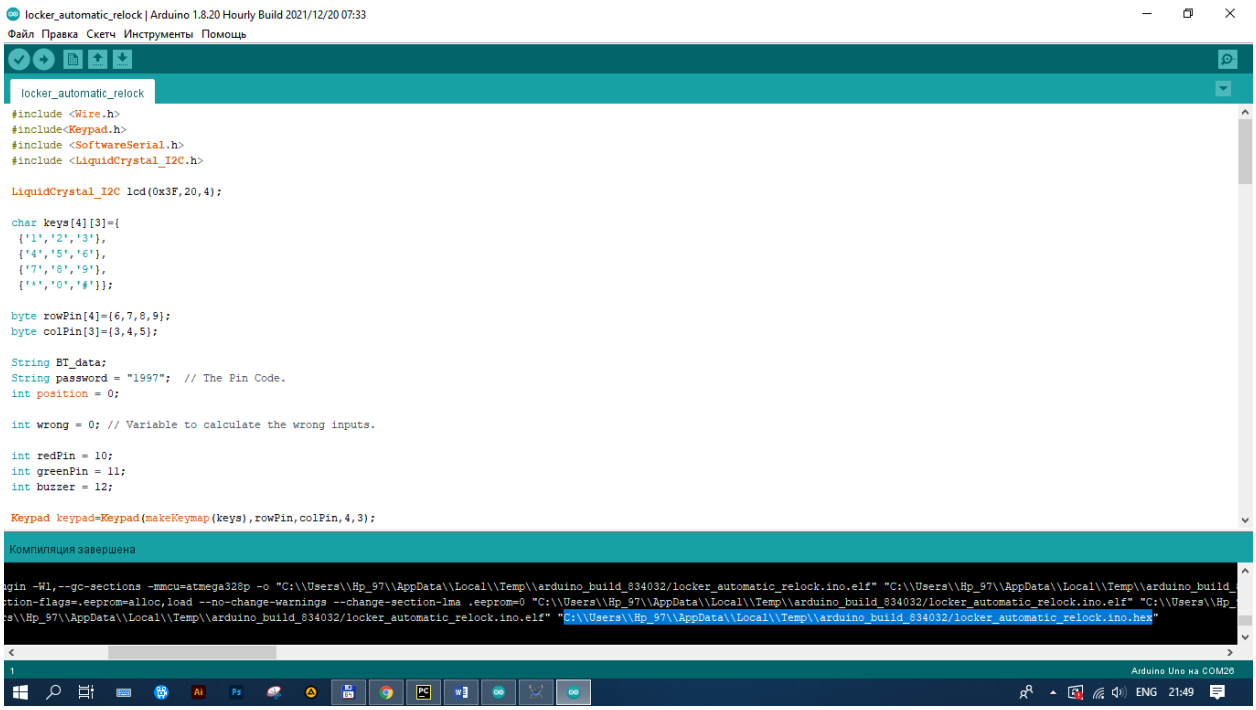
5.3 – rasm. Kuchlanishni kiritish.

Kuchlanish qurulmasini sozlamalariga kirib unga +5Volt berishimiz kerak. Bu manitorni va tovush chiqaruvchi qurilmalar ishlashi uchun zarur.



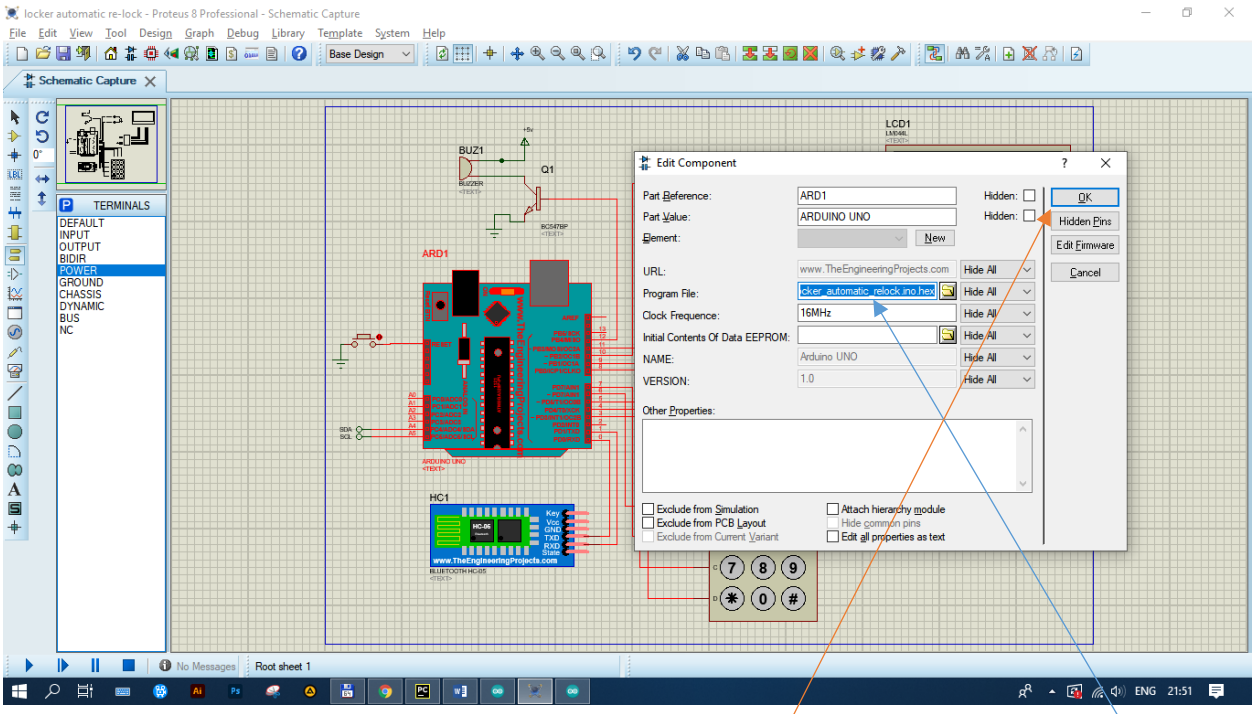
5.4 – rasm. Bluetooth sozlamasi.

Bluetooth proteusga ulash uchun yaratib olingan portni Bluetooth sozlamalariga yozib qo’yishimiz kerak. Shundan so’ng shu portdan kelayotgan malumotlarni proteus ham o’qishni boshlaydi.



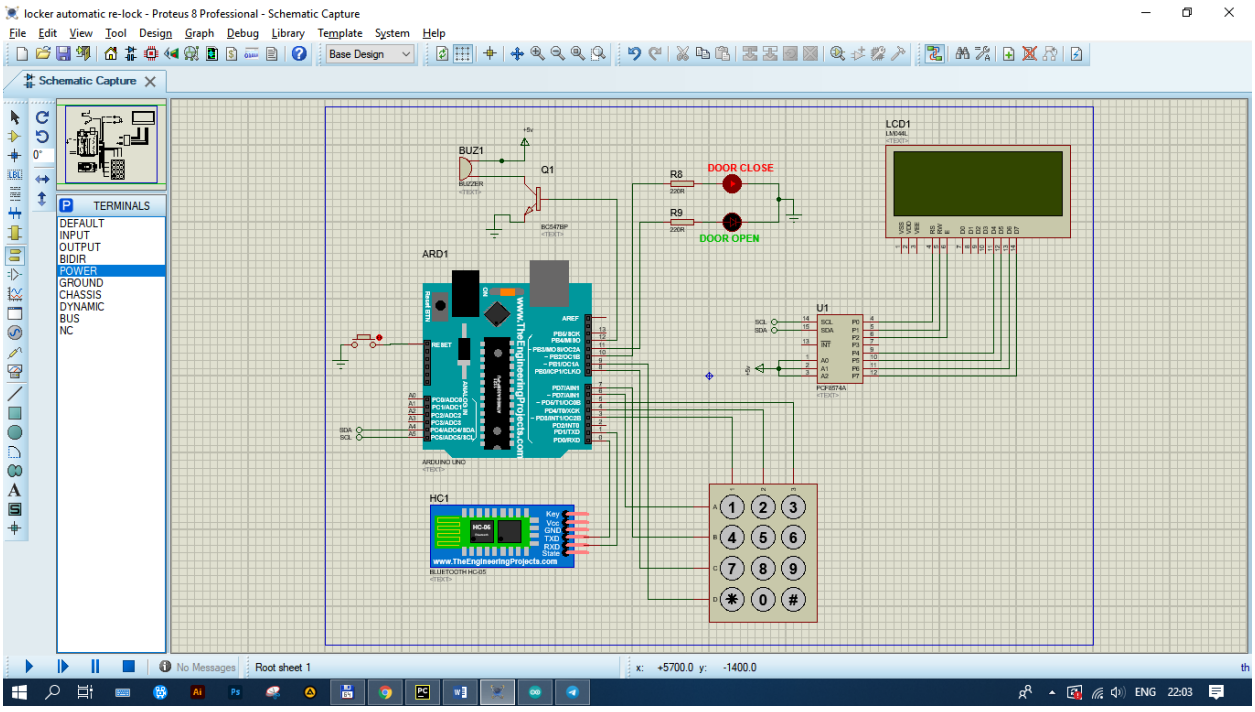
5.5 – rasm. Hex faylni manzili.

Hex faylinf manzilini Proteusdagi Andino Uno sozlamalariga joylaymiz.



5.6 – rasm. Hex fayl manzilini Arduino Unoga joylash.

Hex faylni Arduino Unoga joylash uchun uni sozlamalariga kirib **Program file**ga joylaymiz. Sozlamalarni saqlash uchun **OK** tugmasini bosasiz.



5.7 – rasm. Loyihani ishga tushurish.

Loyihani ishga tushurish uchun ishchi oynaning pastki menu sida joylashgan start tugmasini ▶ bosing.

Dastur kodi:

```
#include <Wire.h>
#include<Keypad.h>
#include <SoftwareSerial.h>
#include <LiquidCrystal_I2C.h>

LiquidCrystal_I2C lcd(0x3F,20,4);

char keys[4][3]={
 {'1','2','3'},
 {'4','5','6'},
 {'7','8','9'},
 {'*','0','#'}};

byte rowPin[4]={6,7,8,9};
byte colPin[3]={3,4,5};

String BT_data;
String password = "4321";  // The Pin Code.
int position = 0;

int wrong = 0; // Variable to calculate the wrong inputs.

int redPin = 10;
int greenPin = 11;
int buzzer = 12;

Keypad keypad=Keypad(makeKeymap(keys),rowPin,colPin,4,3);
// MAPPING THE KEYPAD.
```

```
int total = 0; // Variable to determine the number of wrong attempts.

void setup() {
  pinMode(redPin,OUTPUT);
  pinMode(greenPin,OUTPUT);
  pinMode(buzzer, OUTPUT);

  Serial.begin(9600);

  lcd.init(); //lcd startup
  lcd.init();
  lcd.backlight();
  lcd.print("     4x3 Keypad     ");
  lcd.setCursor(0,1);
  lcd.print("   Locking System   ");
  lcd.setCursor(0,2);
  lcd.print("         By:        ");
  lcd.setCursor(0,3);
  lcd.print("HomeMade Electronics");
  delay(3000);
  lcd.clear();
  setLocked(true);
  delay(20);
}

void loop() {
  lcd.clear();
```

```
lcd.print(" Enter Unlock Code: ");
delay(100);

char pressed=keypad.getKey();
String key[3];

if(pressed) {
  lcd.clear();
  lcd.print(" Enter Unlock Code: ");
  lcd.setCursor(position,2);
  lcd.print(pressed);
  delay(500);
  if(pressed == '*' || pressed == '#') {
    position = 0;
    setLocked(true);
    lcd.clear();
  }

  else if(pressed == password[position]) {
    key[position]=pressed;
    position++;
  }

  else if (pressed != password[position]) {
    wrong++;
    position ++;
  }
}
else if (Serial.available()) {
```

```
  BT_data = Serial.readString();

  if (password == BT_data) {
    wrong = 0;
  }
  else {
    wrong = 1;
  }
  position = 4;
}


if(position == 4){
  if(wrong > 0) {
    total++;
    wrong = 0;
    position = 0;
    lcd.clear();
    lcd.setCursor(0,2);
    lcd.print("    Wrong Code!     ");
    Serial.println("Wrong Code!");
    delay(1000);
    setLocked(true);
  }
  else if(position == 4 && wrong == 0) {
    position = 0;
    wrong = 0;
    lcd.clear();
    lcd.setCursor(0,1);
```

```
      lcd.print("      Welcome!     ");
      Serial.println("\tWelcome!\n\tDoor Open...");
      lcd.setCursor(5,2);
      lcd.print(" Door Open");
      delay(2000);
      setLocked(false);
    }
    if(total == 3) {
      total=0;
      buzzer_beep();
      delay(500);
    }
  }
}

void setLocked(int locked)
  {
    if (locked)
      {
         digitalWrite(redPin, HIGH);
         digitalWrite(greenPin, LOW);
         delay(1000);
      }
    else
      {
         digitalWrite(redPin, LOW);
         digitalWrite(greenPin, HIGH);
         delay(2000);
         digitalWrite(redPin, HIGH);
```

```
        digitalWrite(greenPin, LOW);
        Serial.println("Enter Unlock Code:");
      }
  }

void buzzer_beep()
{
   lcd.clear();
   lcd.setCursor(0,1);
   lcd.print("    WARNING  !!!!   ");
   lcd.setCursor(0,2);
   lcd.print("   Access Denied");
   Serial.println("\tWARNING  !!!!\n\tAccess Denied");
   for (int i=0;i<10;i++){
   digitalWrite(buzzer,HIGH);
   delay(1000);
   digitalWrite(buzzer,LOW);
   delay(1000);
   }
}
```