



Bangladesh University of Business and Technology

Lab Report : 06

Course Title: IoT Lab

Course Code: CSE 426

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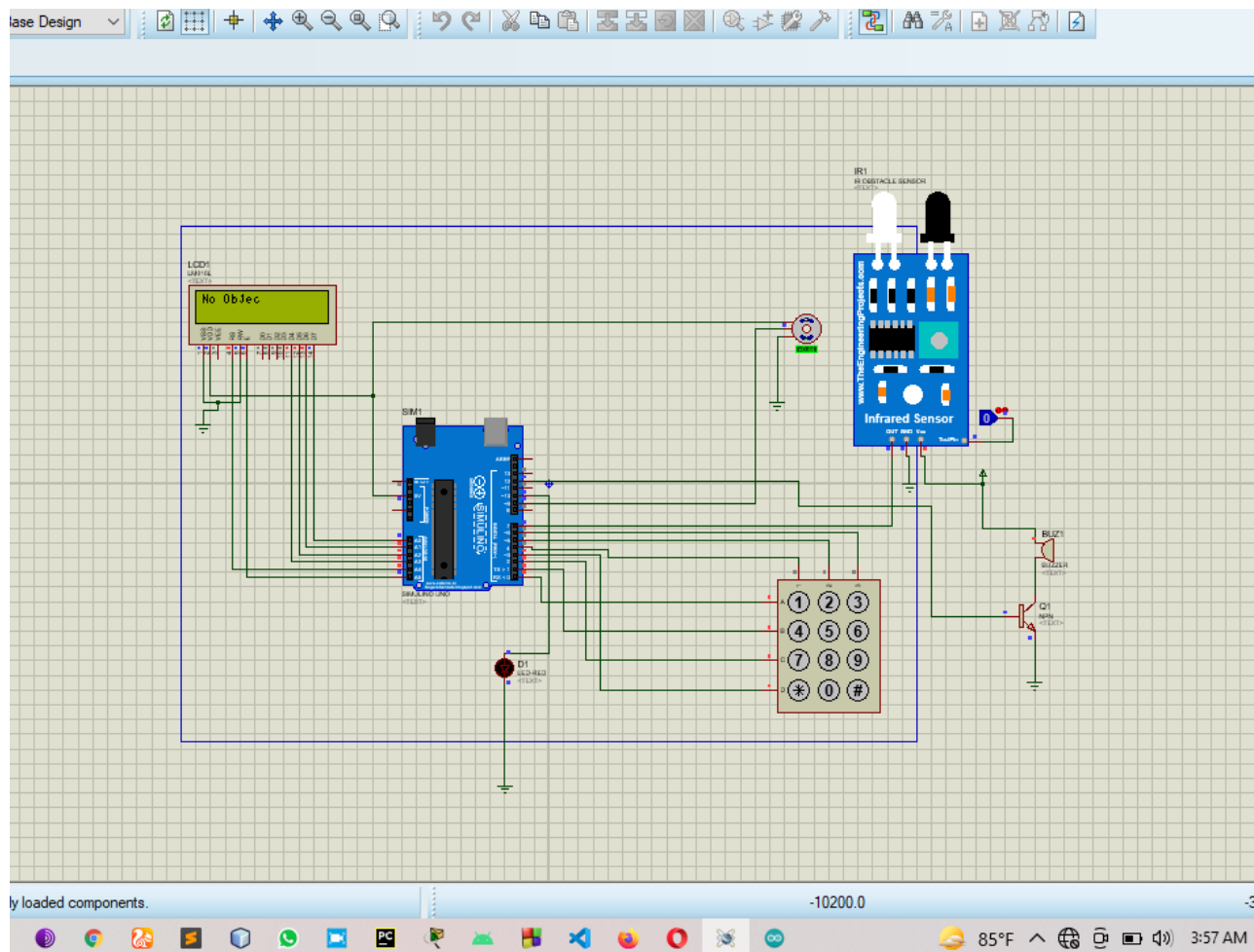
Lab Number: 06

Lab Task Name: Password Based Door Lock System.

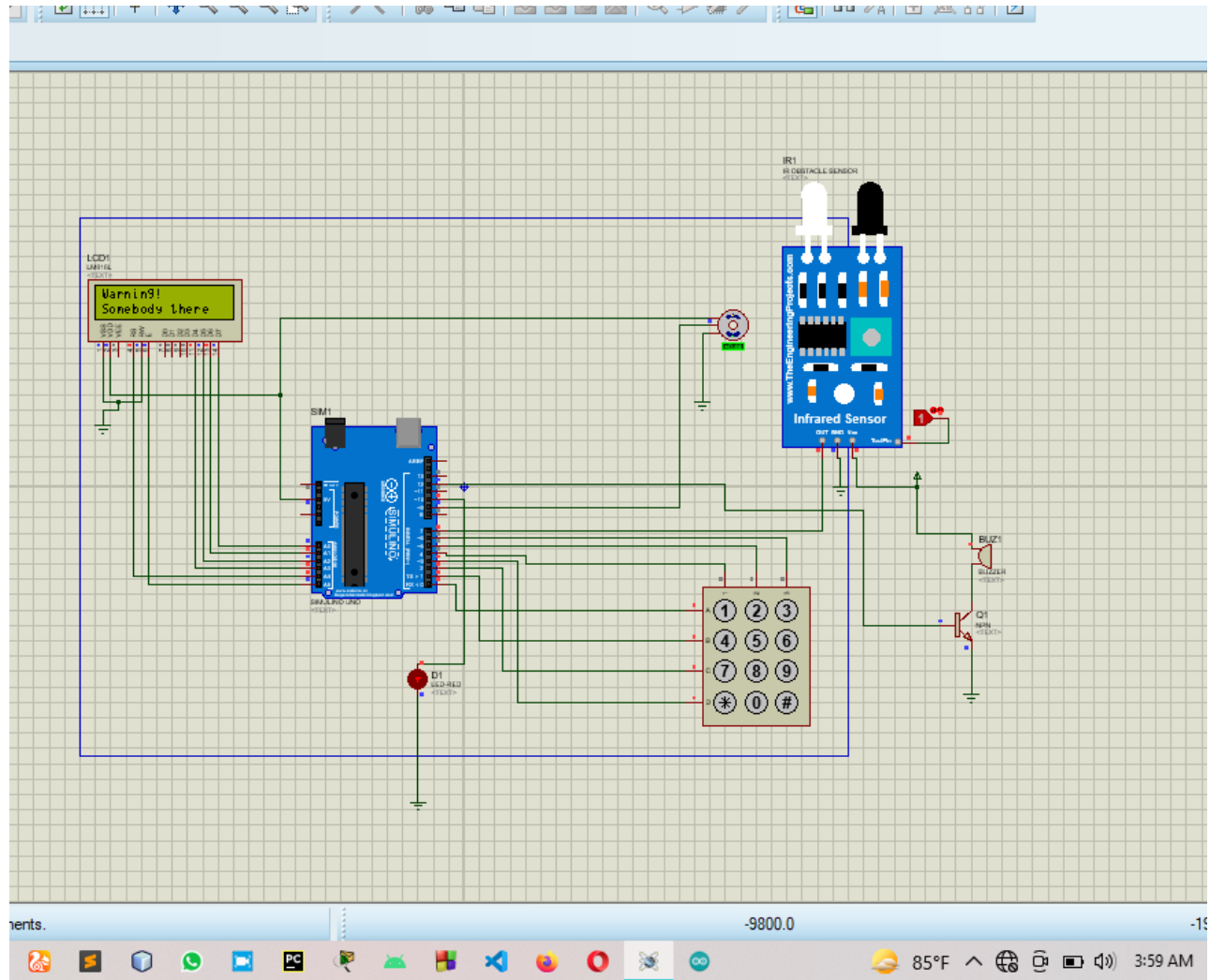
Introduction:

Security is the main challenging things in this modern world. Any one can enter your private home at any time to stole your property . To protect your home from thief you must be secured . In this project a motor is fitted to the door so that door will open only when password is matched .

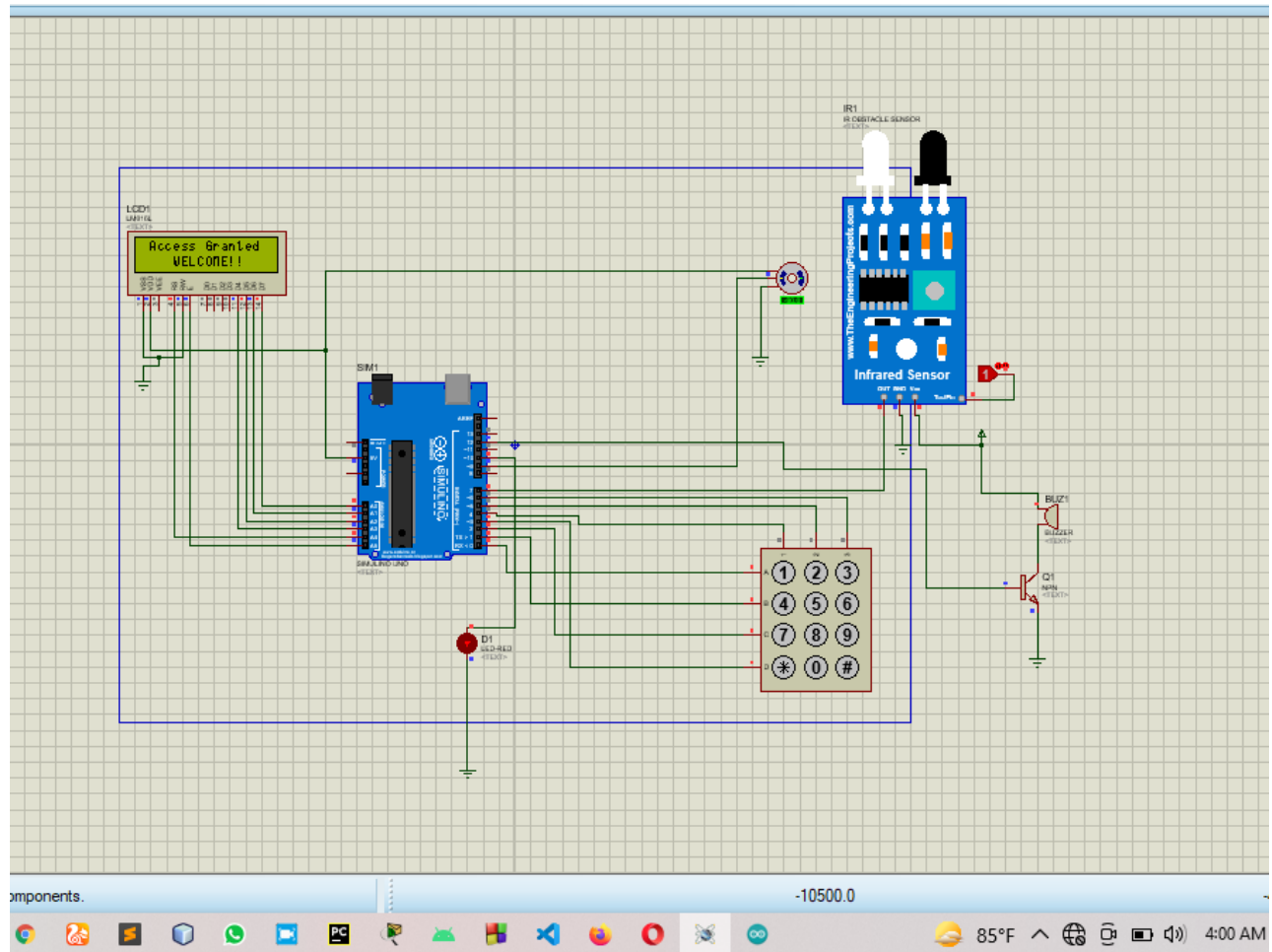
Circuit Diagram 1:



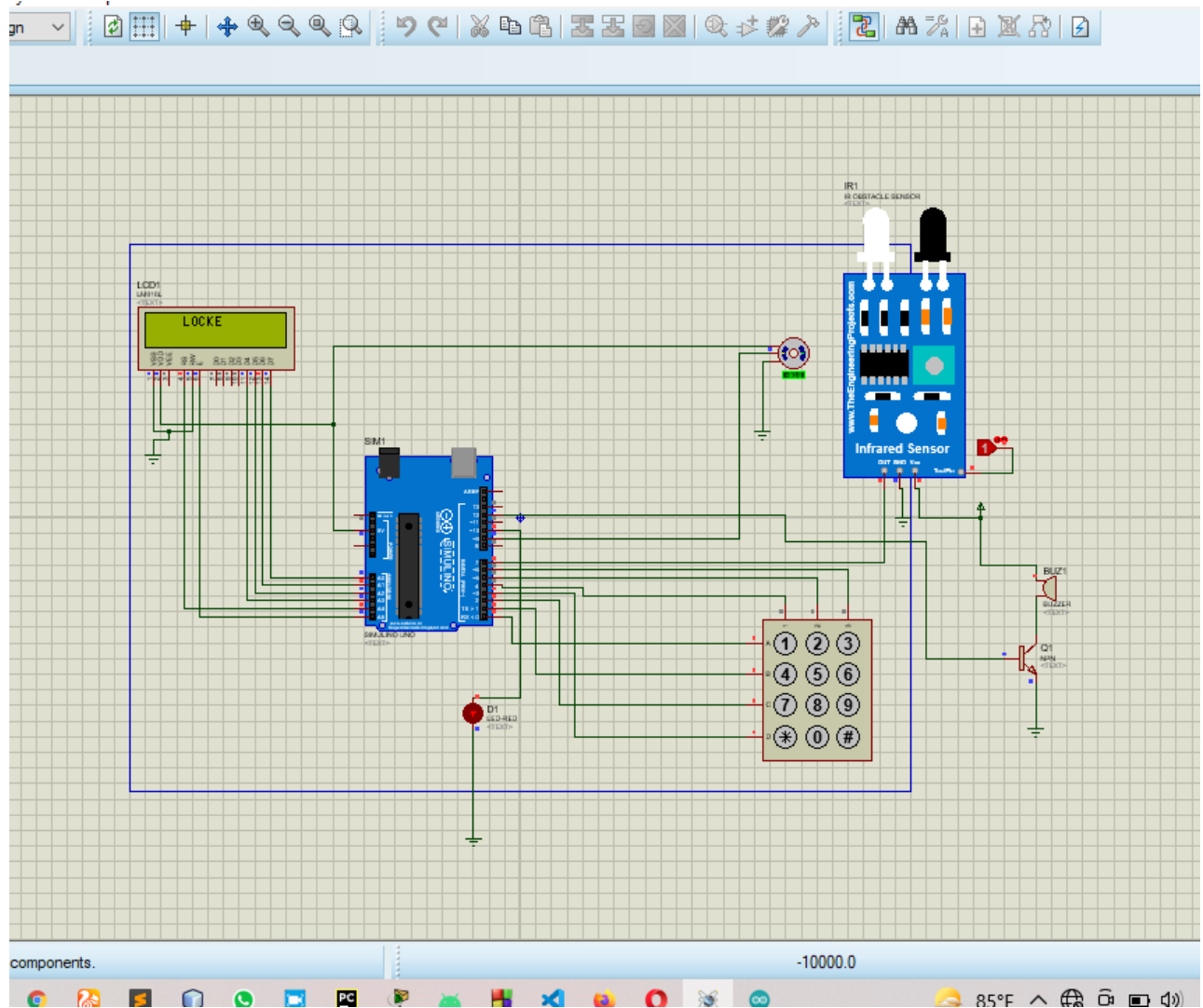
Circuit Diagram 2:



Circuit Diagram 3:



Circuit Diagram 4:



Code:

```
#include <LiquidCrystal.h>
#include <Servo.h>
#include <Keypad.h>
Servo myservo;
int irPin = 7;
int LED = 10;
int buzzerPin = 12;

int sensorOut = LOW;
int pos=0;
LiquidCrystal lcd(A4, A5, A3, A2, A1, A0);
const byte rows=4;
const byte cols=3;

char key[rows][cols]={
  {'1','2','3'},
  {'4','5','6'},
  {'7','8','9'},
  {'*','0','#'}
};
byte rowPins[rows]={0,1,2,3};
byte colPins[cols]={4,5,6};
Keypad keypad= Keypad(makeKeymap(key),rowPins,colPins,rows,cols);
char* password="1122";
int currentposition=0;

void setup()
{
  pinMode(irPin, INPUT);
  pinMode(LED, OUTPUT);
  pinMode(buzzerPin, OUTPUT);

  displayScreen();
  //Serial.begin(9600);
  myservo.attach(9);

  lcd.begin(16,2);
}
```

```

void loop()
{
if( currentposition==0)
{
displayscreen();

}
int l ;
char code=keypad.getKey();
if(code!=NO_KEY)
{
lcd.clear();
lcd.setCursor(0,0);
lcd.print("PASSWORD:");
lcd.setCursor(7,1);
lcd.print(" ");
lcd.setCursor(7,1);
for(l=0;l<=currentposition;++l)
{

lcd.print("*");

}

if (code==password[currentposition])
{
++currentposition;
if(currentposition==4)
{

unlockdoor();
currentposition=0;

}

}

else
{
incorrect();
currentposition=0;
}
}

```

```
}  
}  
}
```

```
void unlockdoor()  
{  
  delay(900);
```

```
  lcd.setCursor(0,0);  
  lcd.println(" ");  
  lcd.setCursor(1,0);  
  lcd.print("Access Granted");  
  lcd.setCursor(4,1);  
  lcd.println("WELCOME!!");  
  lcd.setCursor(15,1);  
  lcd.println(" ");  
  lcd.setCursor(16,1);  
  lcd.println(" ");  
  lcd.setCursor(14,1);  
  lcd.println(" ");  
  lcd.setCursor(13,1);  
  lcd.println(" ");
```

```
  for(pos = 180; pos>=0; pos-=5)  
  {  
    myservo.write(pos);  
    delay(5);  
  }  
  delay(2000);
```

```
  delay(1000);  
  counterbeep();
```

```
  delay(1000);
```

```
  for(pos = 0; pos <= 180; pos +=5)  
  { // in steps of 1 degree  
    myservo.write(pos);  
    delay(15);
```



```
currentposition=0;
```

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

```
}  
}
```

```
void incorrect()  
{  
  delay(500);  
  lcd.clear();  
  lcd.setCursor(1,0);  
  lcd.print("CODE");  
  lcd.setCursor(6,0);  
  lcd.print("INCORRECT");  
  lcd.setCursor(15,1);  
  lcd.println(" ");  
  lcd.setCursor(4,1);  
  lcd.println("GET AWAY!!!");
```

```
  lcd.setCursor(13,1);  
  lcd.println(" ");  
  Serial.println("CODE INCORRECT YOU ARE UNAUTHORIZED");  
  delay(3000);  
  lcd.clear();  
  displayscreen();  
}
```

```
void clearscreen()  
{  
  lcd.setCursor(0,0);  
  lcd.println(" ");  
  lcd.setCursor(0,1);  
  lcd.println(" ");  
  lcd.setCursor(0,2);  
  lcd.println(" ");  
  lcd.setCursor(0,3);  
  lcd.println(" ");  
}
```

```
void displayscreen() {  
  
  sensorOut = digitalRead(irPin);  
  
  if (sensorOut == LOW)  
  
  {  
  
    Serial.println("No Object!");  
    lcd.clear();  
    lcd.print("No Object!");  
  
    digitalWrite(LED, LOW);  
    digitalWrite(buzzerPin, LOW);  
  
  }  
  
  else  
  
  {  
  
    Serial.println("Somebody there!");  
  
  
    lcd.clear();  
    lcd.print("Warning!");  
    lcd.setCursor(0,1);  
    lcd.print("Somebody there");  
  
  
    digitalWrite(LED, HIGH);  
    digitalWrite(buzzerPin, HIGH);  
  
  }  
  
  delay(200);  
}
```

```
void counterbeep()
{
  delay(1200);
```

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

```
  lcd.setCursor(2,15);
  lcd.println(" ");
  lcd.setCursor(2,14);
  lcd.println(" ");
  lcd.setCursor(1,0);
  delay(200);
  lcd.println("CLOSE GET AFTER::");
```

```
  lcd.setCursor(4,1);
  lcd.print("5");
  delay(200);
  lcd.clear();
  lcd.setCursor(1,0);
  lcd.println("CLOSE GET AFTER:");
  delay(1000);
  lcd.setCursor(1,0);
  lcd.println("CLOSE GET AFTER:");
  lcd.setCursor(4,1);
  lcd.print("4");
  delay(100);
  lcd.clear();
  lcd.setCursor(1,0);
  lcd.println("CLOSE GET AFTER:");
  delay(1000);
```

```
  lcd.setCursor(1,0);
  lcd.println("CLOSE GET AFTER:");
  lcd.setCursor(4,1);
  lcd.print("3");
  delay(100);
  lcd.clear();
  lcd.setCursor(1,0);
  lcd.println("CLOSE GET AFTER:");
  delay(1000);
```

```
  lcd.setCursor(1,0);
  lcd.println("CLOSE GET AFTER:");
```

```
lcd.setCursor(4,1);  
lcd.print("2");  
delay(100);  
lcd.clear();  
lcd.setCursor(1,0);  
lcd.println("CLOSE GET AFTER:");  
delay(1000);
```

```
lcd.setCursor(4,1);  
lcd.print("1");  
delay(100);  
lcd.clear();  
lcd.setCursor(1,0);  
lcd.println("CLOSE GET:::");
```

```
delay(1000);  
delay(40);  
lcd.clear();  
lcd.setCursor(2,0);  
lcd.print("RE-LOCKING");  
delay(500);  
lcd.setCursor(12,0);  
lcd.print(".");  
delay(500);  
lcd.setCursor(13,0);  
lcd.print(".");  
delay(500);  
lcd.setCursor(14,0);  
lcd.print(".");  
delay(400);  
lcd.clear();  
lcd.setCursor(4,0);  
lcd.print("LOCKED!");  
delay(440);  
}
```

Conclusion: This project is about a Password Based Door Lock System using Arduino UNO. I face some difficulties in coding part, that part is keypad lock and the main problem I have to see in this project is that when the servo motor locks the door, it turns very slow and some devices how to work in this project, I did not know. After that I study on this device then I solved this project.

