Semester End Practical Exam!!

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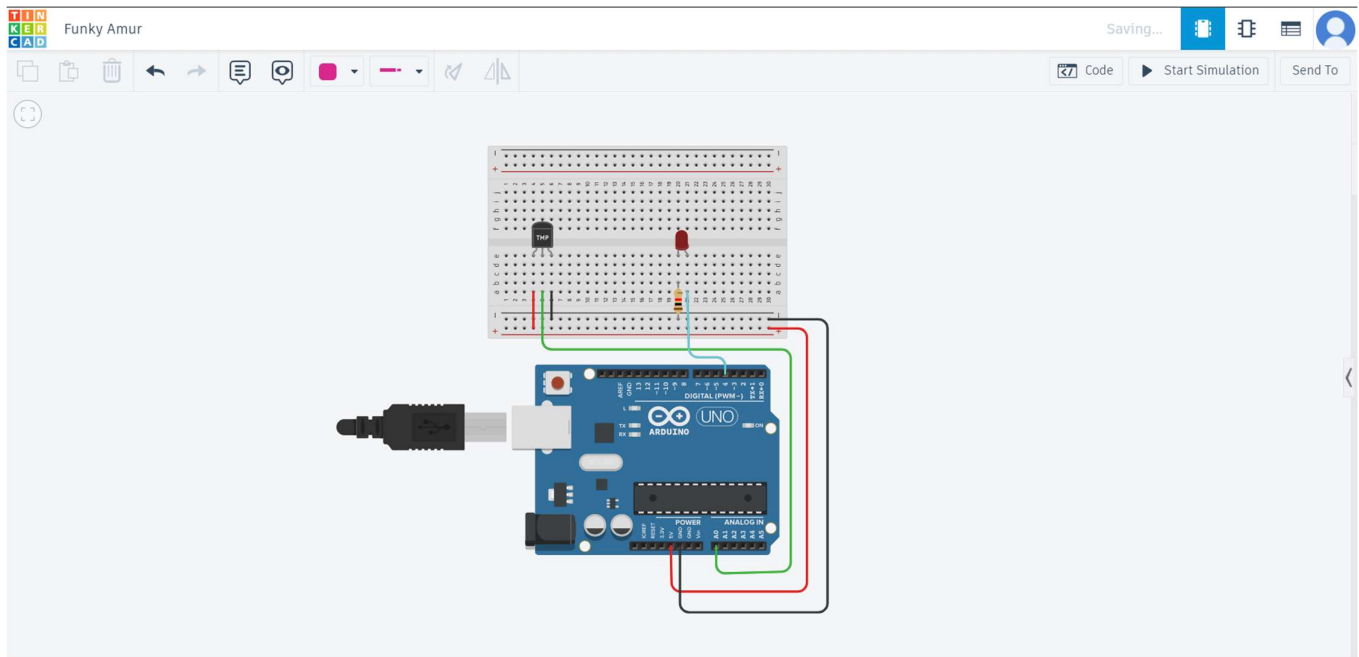
Class: M.Sc. Cyber Security Sem-3

Enrollment Number: 032200300002034

Subject: IoT security and Forensics (CTMSCS SIII L2)

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Question 1: Design a system which blinks light at intervals of 2 sec when temperature reaches to 50 degree using Arduino


```cpp
// C++ code
//
int baselineTemp = 0;

int celsius = 0;

void setup()
{
  pinMode(A0, INPUT);
  Serial.begin(9600);
  pinMode(4, OUTPUT);
}
```
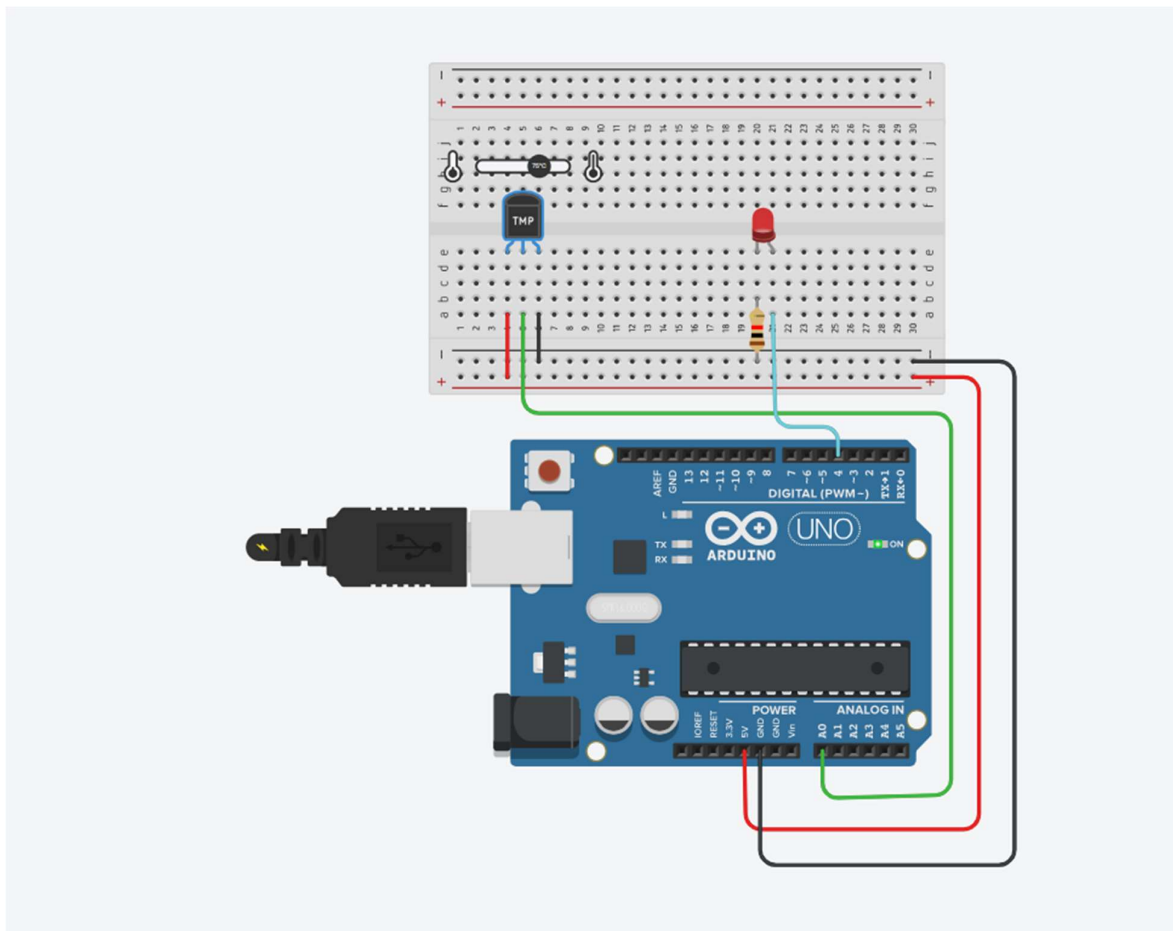
```
void loop()
{
  // set threshold temperature to activate LEDs
  baselineTemp = 50;
  // measure temperature in Celsius
  celsius = map(((analogRead(A0) - 20) * 3.04), 0, 1023, -40, 125);

  Serial.print(celsius);
  Serial.print(" C, ");

  if (celsius >= baselineTemp) {
    digitalWrite(4, HIGH);
    delay(2000);
    digitalWrite(4, LOW);
    delay(2000);
  }
}
```
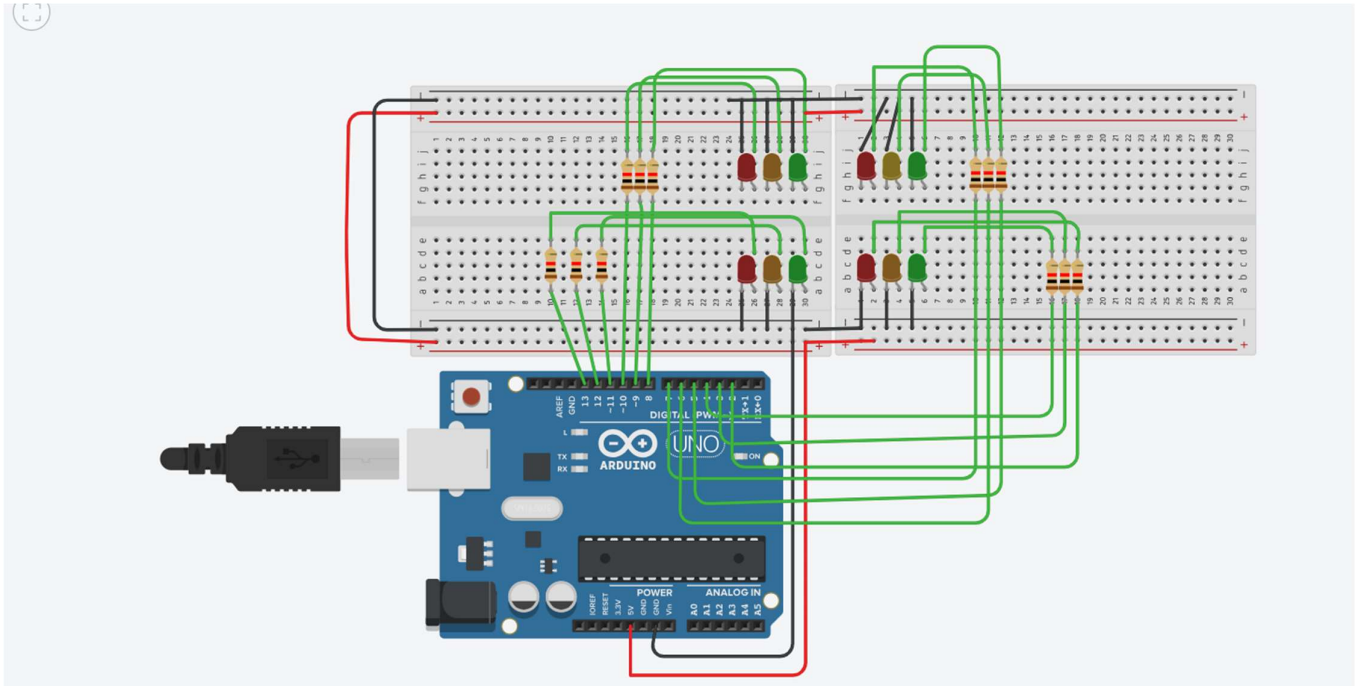
Question 2: Design a traffic light controller using Arduino


```
void setup()
{
  pinMode(13,OUTPUT);
  pinMode(12,OUTPUT);
  pinMode(11,OUTPUT);
  pinMode(10,OUTPUT);
  pinMode(9,OUTPUT);
  pinMode(8,OUTPUT);
  pinMode(7,OUTPUT);
  pinMode(6,OUTPUT);
  pinMode(5,OUTPUT);
  pinMode(4,OUTPUT);
  pinMode(3,OUTPUT);
  pinMode(2,OUTPUT);
}
void loop()
{
  digitalWrite(13,HIGH);//allow pedistrains
  digitalWrite(12,LOW);
  digitalWrite(11,LOW);
  digitalWrite(10,HIGH);
  digitalWrite(9,LOW);
  digitalWrite(8,LOW);
  digitalWrite(7,HIGH);
```

```
    digitalWrite(6,LOW);
    digitalWrite(5,LOW);
    digitalWrite(4,LOW);
    digitalWrite(3,LOW);
    digitalWrite(2,HIGH);
    delay(5000); //wait for 5000 milliseconds(s)


    digitalWrite(13,LOW);
    digitalWrite(12,HIGH);
    delay(3000);//wait for 3000 milliseconds(s)
    digitalWrite(12,LOW);
    digitalWrite(11,HIGH);
    delay(5000);//wait for 10000 milliseconds(s)
      digitalWrite(6,LOW);
    digitalWrite(5,HIGH);
     delay(10000);//wait for 10000 milliseconds(s)
    digitalWrite(5,LOW);
    digitalWrite(2,LOW);
    digitalWrite(3,HIGH);
    digitalWrite(7,HIGH);
     delay(3000);//wait for 3000 milliseconds(s)

    digitalWrite(3,LOW);
    digitalWrite(4,HIGH);
     delay(10000);//wait for 10000 milliseconds(s)
    digitalWrite(4,LOW);
    digitalWrite(2,HIGH);
    digitalWrite(9,HIGH);
    digitalWrite(10,LOW);
     delay(3000);//wait for 3000 milliseconds(s)
    digitalWrite(9,LOW);
    digitalWrite(8,HIGH);
     delay(10000); //wait for 10000 milliseconds(s)
}
```