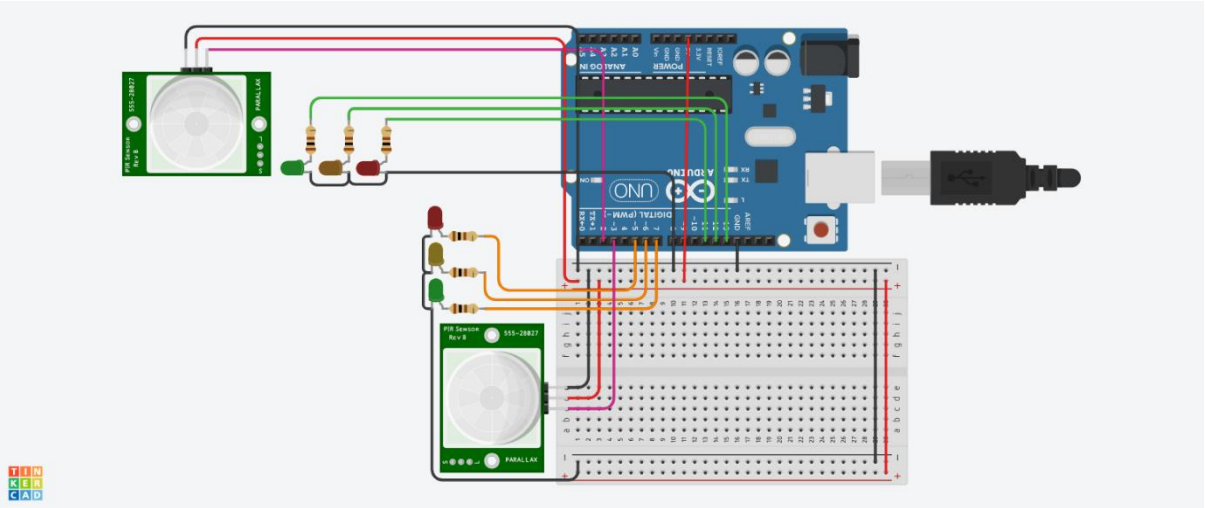
SMART TRAFFIC LIGHT SYSTEM USING PIR SENSORS

INTRODUCTION

The system is intended to automate the traffic system using three coloured LED. This system uses arduino uno as a main control unit and sensors are its peripherals. The PIR sensors are placed in the manner of a realtime traffic in a city. The LED lights are managed by the Arduino uno by the signals from the PIR sensors.

SYSTEM CHART



- There is an 6 LED and 3 LED each near the PIR sensor which LED glows for a certain Time interval

USES

- This system can be used to manage the traffic system in the cities. This is a realtime traffic simulation

EMBEDDED C CODE

```
// Pin sensor Pir
int sh = 2;
int sv = 3;
```

```
// Valores de los sensores
int valh = 0;
int valv = 0;

// Pin semaforo vertical
int rv = 5;
int av = 6;
int vv = 7;

// Pin semaforo horizontal
int rh = 11;
int ah = 12;
int vh = 13;

void setup()
{
  for (int i = 5; i <= 13; i++) {
          pinMode(i, OUTPUT);
  }
  pinMode(sh, INPUT);
  pinMode(sv, INPUT);
  Serial.begin(9600);
}

void loop()
{
  valh = digitalRead(sh);
  valv = digitalRead(sv);

  Serial.print("Horizontal: ");
  Serial.println(valh);
  Serial.print("Vertical: ");
  Serial.println(valv);
  Serial.println();

  int th1 = 3000;
  int th2 = 400;

  int tv1 = 3000;
  int tv2 = 400;

  if (valh == HIGH && valv == LOW) {
          Serial.println("Aumentar Horizontal");
    th1 = th1 * 2;
    th2 = th2 * 2;
  } else if (valh == LOW && valv == HIGH) {
    Serial.println("Aumentar Vertical");
    tv1 = tv1 * 2;
          tv2 = tv2 * 2;
  }

  semaforoHorizontal(th1, th2);
  semaforoVertical(tv1, tv2);
}
```

```
void semaforoHorizontal(int t1, int t2) {
  digitalWrite(rv, HIGH);
  digitalWrite(vh, HIGH);
  delay(t1);
  digitalWrite(vh, LOW);
  digitalWrite(ah, HIGH);
  delay(t2);
  digitalWrite(rv, LOW);
  digitalWrite(ah, LOW);
}

void semaforoVertical(int t1, int t2) {
  digitalWrite(rh, HIGH);
  digitalWrite(vv, HIGH);
  delay(t1);
  digitalWrite(vv, LOW);
  digitalWrite(av, HIGH);
  delay(t2);
  digitalWrite(rh, LOW);
  digitalWrite(av, LOW);
}
```

TINKERCAD LINK

https://www.tinkercad.com/things/eIeBn5pNYcv-copy-of-smart-traffic-light/editel?sharecode=9N3dQQUnl4Uu5wuoeoYpMwJbSqsIB9yXSi7g3xEVJxk