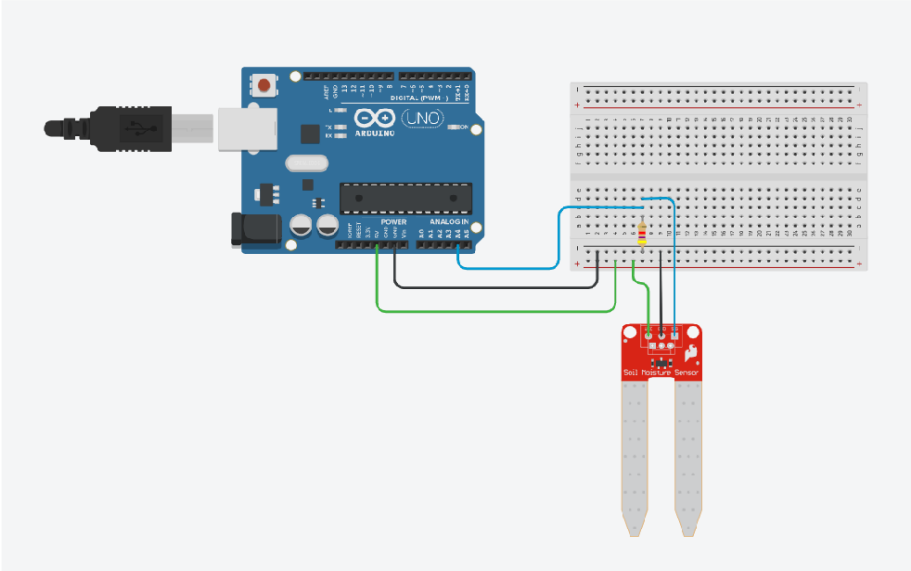
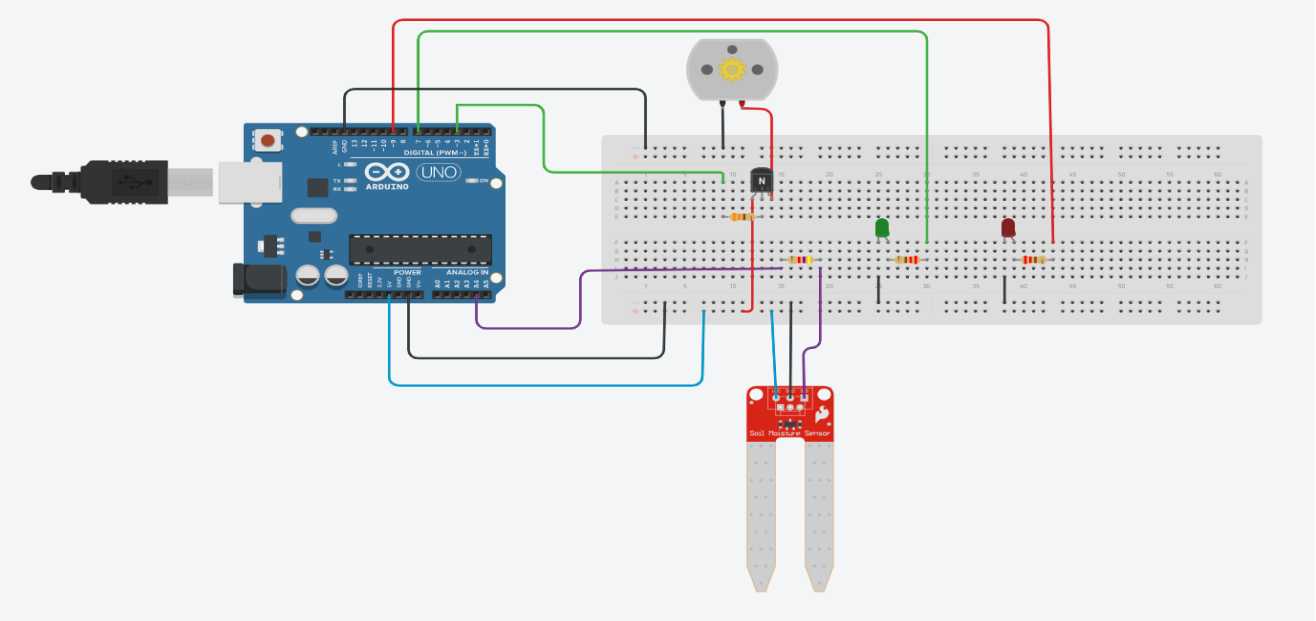
1. Moisture sensor



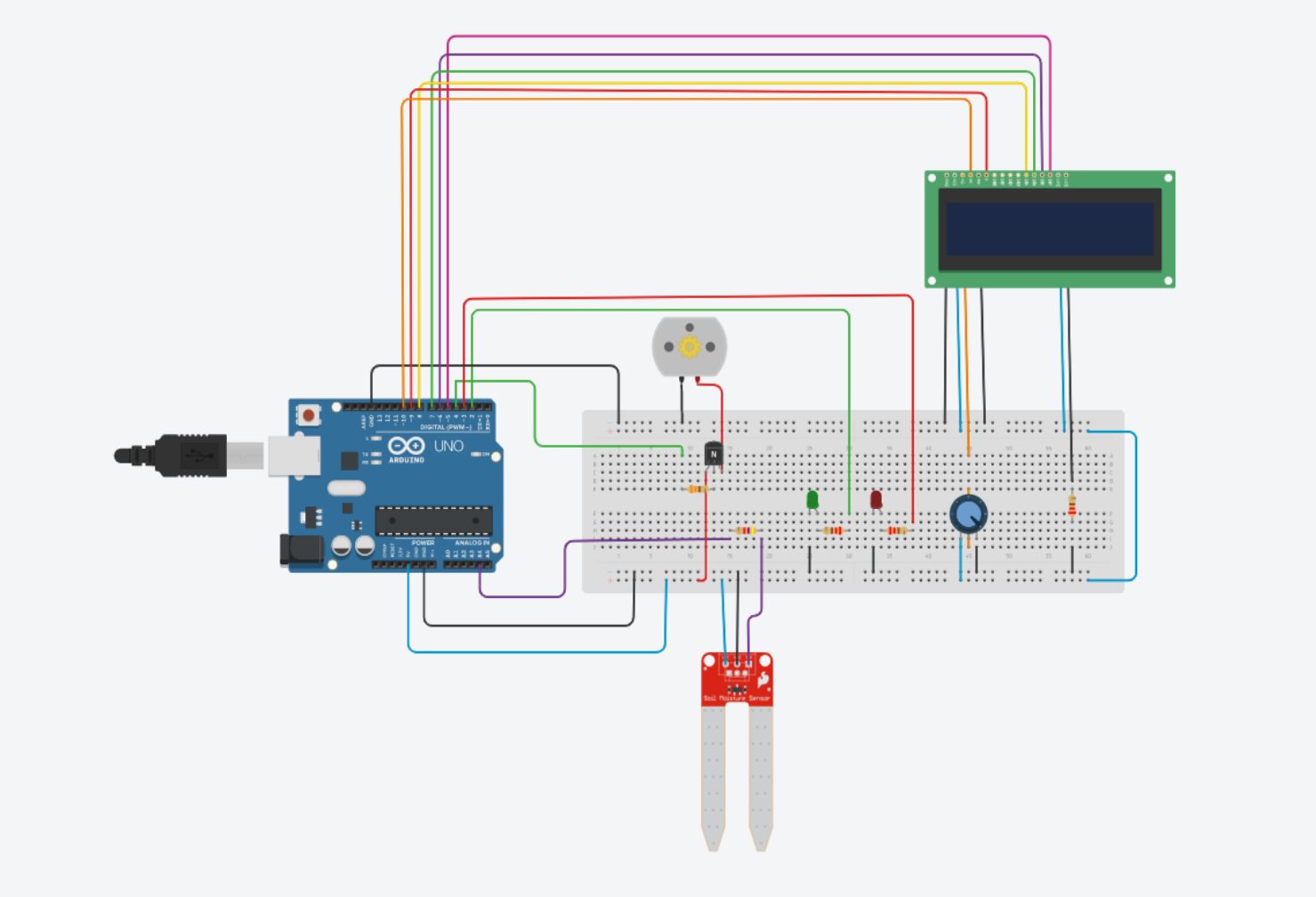

```
int k;
void setup()
{

  Serial.begin(9600);
  pinMode(A4, INPUT);

}

void loop()
{

  k = analogRead(A4);
  Serial.println(k);

}
```

2. Automated crop watering




```
int k;
void setup()
{
 Serial.begin(9600);
 pinMode(A4, INPUT);
 pinMode(7,OUTPUT);
 pinMode(9,OUTPUT);
 pinMode(3,OUTPUT);
}
void loop()
{
 k=analogRead(A4);
 Serial.println(k);
 if(k<177)
 {
  digitalWrite(3,HIGH);
  digitalWrite(7,HIGH);
  digitalWrite(9,LOW);
 }
 else
 {
  digitalWrite(3,LOW);
  digitalWrite(7,LOW);
  digitalWrite(9,HIGH);
 }
}
```

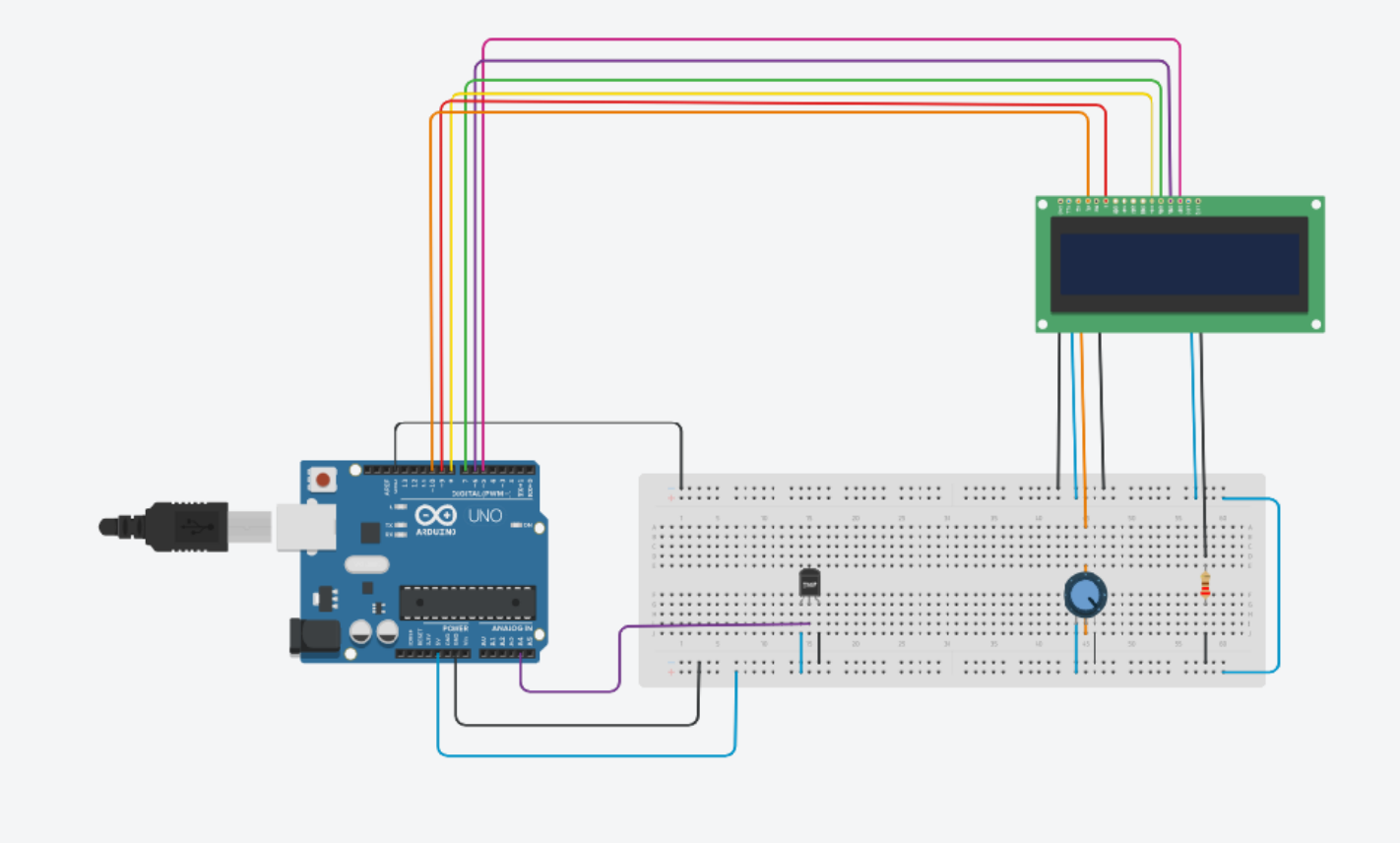
3. Automated crop watering with LCD



```
#include<LiquidCrystal.h>

int motor=4;
int gled=2;
int rled=3;
LiquidCrystal lcd(10,9,8,7,6,5);
int k;
void setup()
{

  Serial.begin(9600);
```

```
  lcd.begin(16,2);
  lcd.print("Automated crop");
  lcd.setCursor(0,1);
  lcd.print("watering system");
  pinMode(A4, INPUT);
  pinMode(motor,OUTPUT);
  pinMode(gled,OUTPUT);
  pinMode(rled,OUTPUT);
  delay(2000);
  lcd.clear();
}

void loop()
{

  k=analogRead(A4);
  Serial.println(k);
  lcd.setCursor(0,0);
  lcd.print("mois val=");
  lcd.setCursor(10,0);
  lcd.print(k);

  if(k<177)
  {

    lcd.setCursor(0,1);
    lcd.print("motor is ON ");
    digitalWrite(motor,HIGH);
    digitalWrite(gled,HIGH);
    digitalWrite(rled,LOW);


  }
  else
  {

    lcd.setCursor(0,1);
    lcd.print("motor is OFF");

    digitalWrite(motor,LOW);
    digitalWrite(gled,LOW);
    digitalWrite(rled,HIGH);
  }

}
```

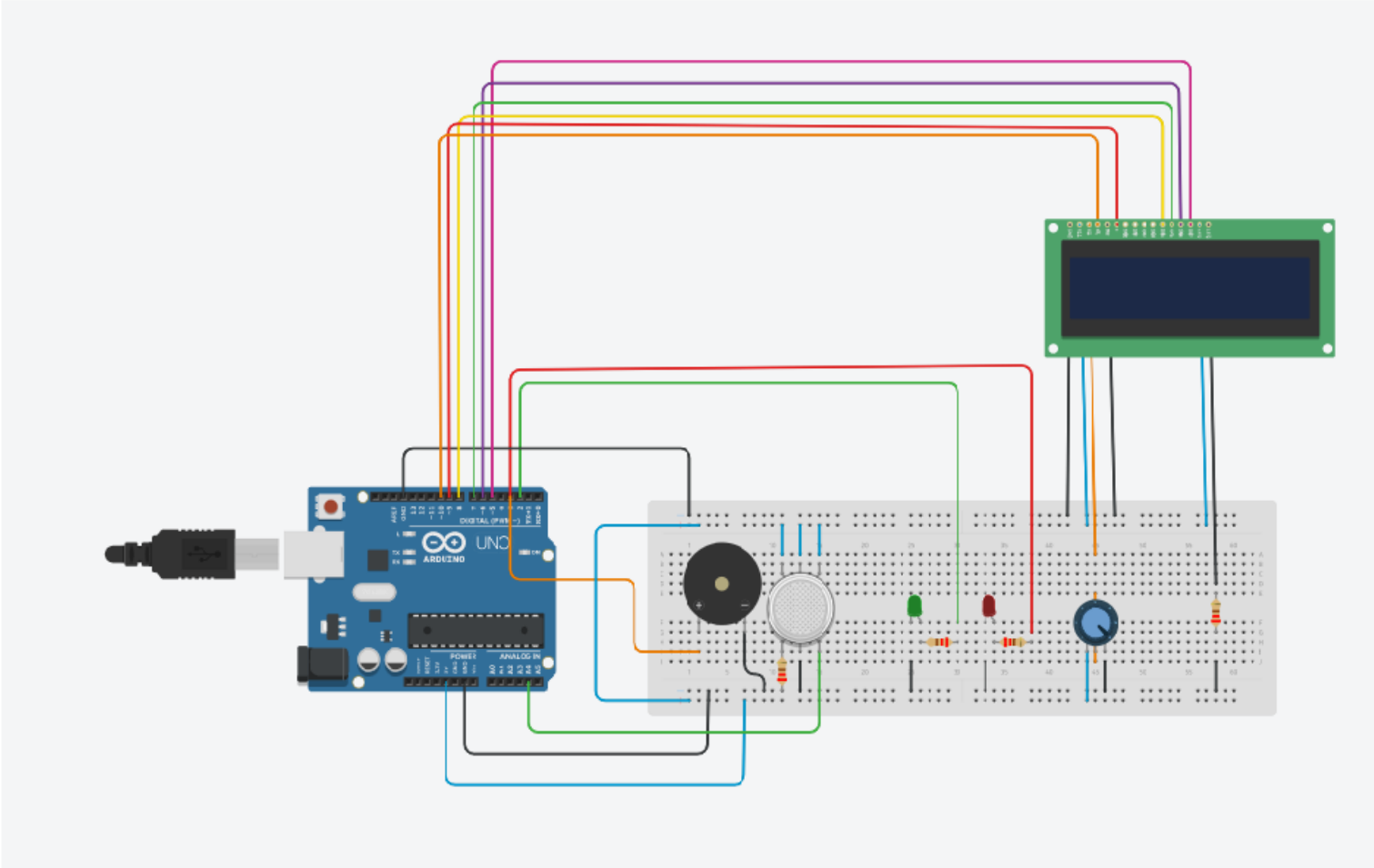
4. Temperature sensor



```
#include<LiquidCrystal.h>

LiquidCrystal lcd(10,9,8,7,6,5);
int stmp=0;
float atemp=0;
float ctemp;

void setup()
{
  Serial.begin(9600);
  lcd.begin(16,2);
  lcd.print("Temperature");
  pinMode(A4,INPUT);

}

void loop()
```

```
{
  stmp=analogRead(A4);
  ctemp=(stmp/1024.0)*5.0;
  atemp=(ctemp-0.5)*100;
  lcd.setCursor(0,1);
  lcd.print("value ");
  lcd.setCursor(7,1);
  lcd.print(atemp);


}
```

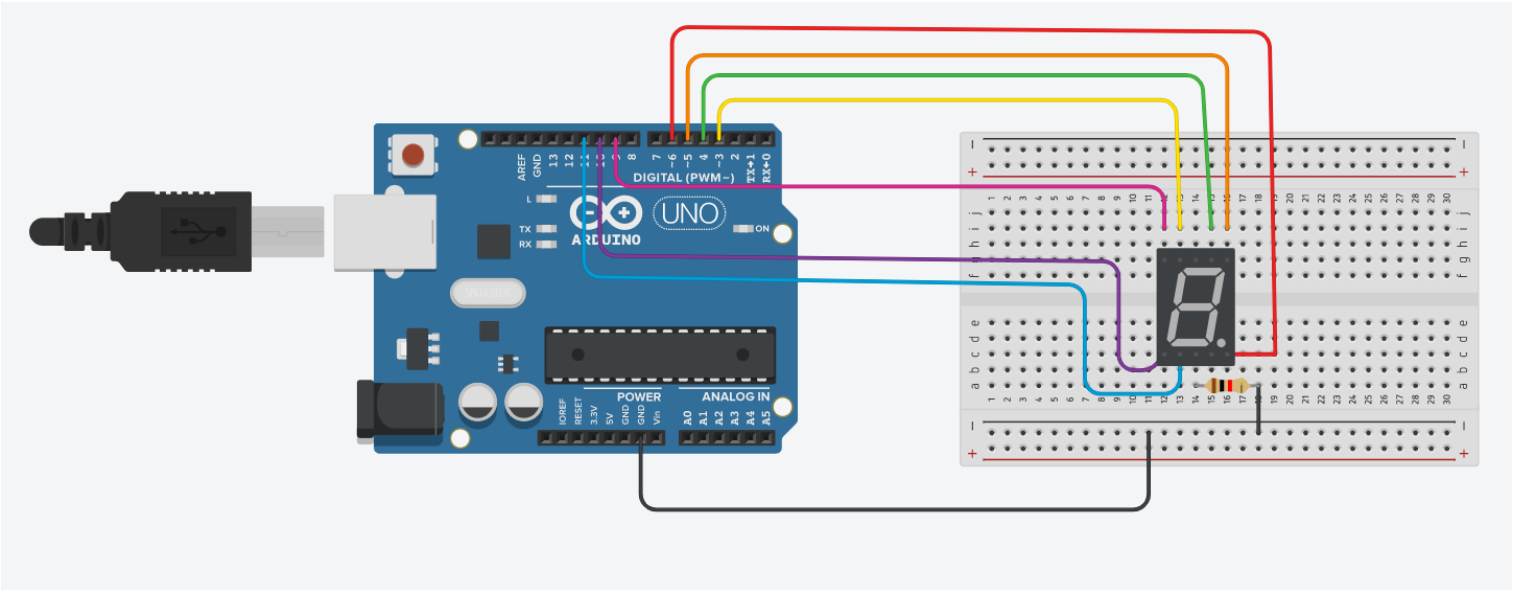
5. Fire emergency



```
#include<LiquidCrystal.h>

int gled=2;
int rled=3;
int buz=3;
LiquidCrystal lcd(10,9,8,7,6,5);
int smoke;
void setup()
{
  Serial.begin(9600);
  lcd.begin(16,2);
  lcd.print("GAS LEAKAGE");
  lcd.setCursor(0,1);
  lcd.print("RISK LEVEL");
  pinMode(A4, INPUT);
  pinMode(gled,OUTPUT);
  pinMode(rled,OUTPUT);
  pinMode(buz,OUTPUT);
  delay(2000);
  lcd.clear();
}

void loop()
{
  smoke=analogRead(A4);
  Serial.println(smoke);
  lcd.setCursor(0,0);
  lcd.print("RISK LEVEL ");
  lcd.setCursor(12,0);
  lcd.print(smoke);
```

```
if(smoke<=25)
{
  lcd.setCursor(0,1);
  lcd.print("GOOD DAY FOR ALL");
  digitalWrite(gled,HIGH);
  digitalWrite(rled,LOW);
  digitalWrite(buz,LOW);



}
else
{ lcd.setCursor(0,1);
  lcd.print("Emergency exit  ");
  digitalWrite(gled,LOW);
  digitalWrite(rled,HIGH);
  digitalWrite(buz,HIGH);
}
}
```

6. Seven segment display



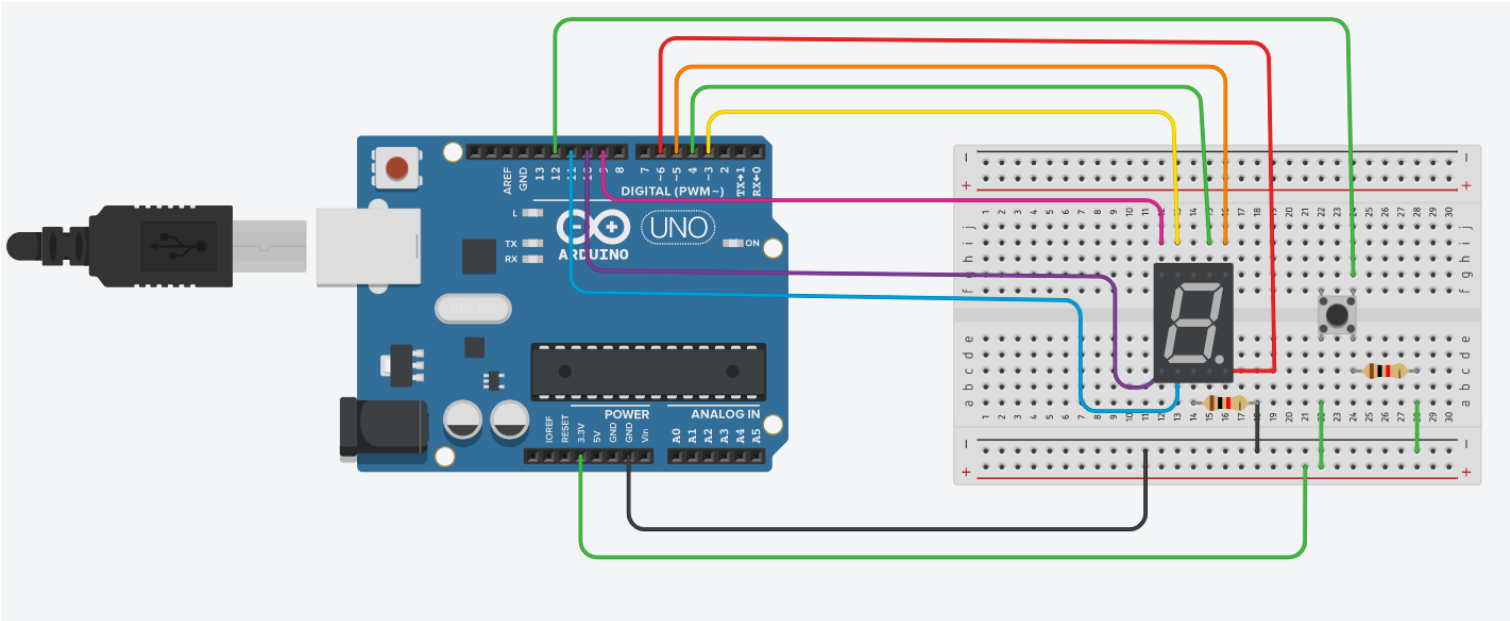
```
int a=4;
int b=5;
int c=6;
int d=11;
int e=10;
int f=3;
int g=9;

void setup()
{
  pinMode(a, OUTPUT);
  pinMode(b, OUTPUT);
  pinMode(c, OUTPUT);
  pinMode(d, OUTPUT);
  pinMode(e, OUTPUT);
  pinMode(f, OUTPUT);
  pinMode(g, OUTPUT);

}

void loop()
{
  digitalWrite(a,HIGH);
  digitalWrite(b,HIGH);
  digitalWrite(c,HIGH);
  digitalWrite(d,HIGH);
  digitalWrite(e,HIGH);
  digitalWrite(f,HIGH);
  digitalWrite(g,LOW);
  delay(500);

  digitalWrite(a,LOW);
  digitalWrite(b,HIGH);
```

```
digitalWrite(c,HIGH);
digitalWrite(d,LOW);
digitalWrite(e,LOW);
digitalWrite(f,LOW);
digitalWrite(g,LOW);
delay(500);

digitalWrite(a,HIGH);
digitalWrite(b,HIGH);
digitalWrite(c,LOW);
digitalWrite(d,HIGH);
digitalWrite(e,HIGH);
digitalWrite(f,LOW);
digitalWrite(g,HIGH);
delay(500);

digitalWrite(a,HIGH);
digitalWrite(b,HIGH);
digitalWrite(c,HIGH);
digitalWrite(d,HIGH);
digitalWrite(e,LOW);
digitalWrite(f,LOW);
digitalWrite(g,HIGH);
delay(500);

digitalWrite(a,LOW);
digitalWrite(b,HIGH);
digitalWrite(c,HIGH);
digitalWrite(d,LOW);
digitalWrite(e,LOW);
digitalWrite(f,HIGH);
digitalWrite(g,HIGH);
delay(500);
```

```
digitalWrite(a,HIGH);
digitalWrite(b,LOW);
digitalWrite(c,HIGH);
digitalWrite(d,HIGH);
digitalWrite(e,LOW);
digitalWrite(f,HIGH);
digitalWrite(g,HIGH);
delay(500);

digitalWrite(a,HIGH);
digitalWrite(b,LOW);
digitalWrite(c,HIGH);
digitalWrite(d,HIGH);
digitalWrite(e,HIGH);
digitalWrite(f,HIGH);
digitalWrite(g,HIGH);
delay(500);

digitalWrite(a,HIGH);
digitalWrite(b,HIGH);
digitalWrite(c,HIGH);
digitalWrite(d,LOW);
digitalWrite(e,LOW);
digitalWrite(f,LOW);
digitalWrite(g,LOW);
delay(500);

digitalWrite(a,HIGH);
digitalWrite(b,HIGH);
digitalWrite(c,HIGH);
digitalWrite(d,HIGH);
digitalWrite(e,HIGH);
```

```
digitalWrite(f,HIGH);
digitalWrite(g,HIGH);
delay(500);

digitalWrite(a,HIGH);
digitalWrite(b,HIGH);
digitalWrite(c,HIGH);
digitalWrite(d,HIGH);
digitalWrite(e,LOW);
digitalWrite(f,HIGH);
digitalWrite(g,HIGH);
delay(500);

}
```

7. Token Program




```
int a=4;
int b=5;
int c=6;
int d=11;
int e=10;
int f=3;
int g=9;
```

```
int pushbutton=12;
int buttonstate=0;
int lastbuttonstate=0;
int count=0;

void setup()
{
  pinMode(a, OUTPUT);
  pinMode(b, OUTPUT);
  pinMode(c, OUTPUT);
  pinMode(d, OUTPUT);
  pinMode(e, OUTPUT);
  pinMode(f, OUTPUT);
  pinMode(g, OUTPUT);
  pinMode(pushbutton, INPUT);

}

void loop()
{
  buttonstate= digitalRead(pushbutton);
  if(buttonstate != lastbuttonstate)
  {
    if(buttonstate== HIGH){
      count++;
      if(count>9)
        count=0;
    }
  }

  lastbuttonstate=buttonstate;

switch(count)
{
  case 0:
    digitalWrite(a,HIGH);
  digitalWrite(b,HIGH);
  digitalWrite(c,HIGH);
  digitalWrite(d,HIGH);
  digitalWrite(e,HIGH);
  digitalWrite(f,HIGH);
  digitalWrite(g,LOW);
  break;

  case 1:
  digitalWrite(a,LOW);
  digitalWrite(b,HIGH);
  digitalWrite(c,HIGH);
  digitalWrite(d,LOW);
  digitalWrite(e,LOW);
```

```
digitalWrite(f,LOW);
digitalWrite(g,LOW);
break;

case 2:
digitalWrite(a,HIGH);
digitalWrite(b,HIGH);
digitalWrite(c,LOW);
digitalWrite(d,HIGH);
digitalWrite(e,HIGH);
digitalWrite(f,LOW);
digitalWrite(g,HIGH);
break;

case 3:
digitalWrite(a,HIGH);
digitalWrite(b,HIGH);
digitalWrite(c,HIGH);
digitalWrite(d,HIGH);
digitalWrite(e,LOW);
digitalWrite(f,LOW);
digitalWrite(g,HIGH);
break;

case 4:
digitalWrite(a,LOW);
digitalWrite(b,HIGH);
digitalWrite(c,HIGH);
digitalWrite(d,LOW);
digitalWrite(e,LOW);
digitalWrite(f,HIGH);
digitalWrite(g,HIGH);
break;

case 5:
digitalWrite(a,HIGH);
digitalWrite(b,LOW);
digitalWrite(c,HIGH);
digitalWrite(d,HIGH);
digitalWrite(e,LOW);
digitalWrite(f,HIGH);
digitalWrite(g,HIGH);
break;

case 6:
digitalWrite(a,HIGH);
digitalWrite(b,LOW);
digitalWrite(c,HIGH);
digitalWrite(d,HIGH);
digitalWrite(e,HIGH);
```

```
  digitalWrite(f,HIGH);
  digitalWrite(g,HIGH);
  break;

  case 7:
  digitalWrite(a,HIGH);
  digitalWrite(b,HIGH);
  digitalWrite(c,HIGH);
  digitalWrite(d,LOW);
  digitalWrite(e,LOW);
  digitalWrite(f,LOW);
  digitalWrite(g,LOW);
  break;

  case 8:
  digitalWrite(a,HIGH);
  digitalWrite(b,HIGH);
  digitalWrite(c,HIGH);
  digitalWrite(d,HIGH);
  digitalWrite(e,HIGH);
  digitalWrite(f,HIGH);
  digitalWrite(g,HIGH);
  break;

  case 9:
  digitalWrite(a,HIGH);
  digitalWrite(b,HIGH);
  digitalWrite(c,HIGH);
  digitalWrite(d,HIGH);
  digitalWrite(e,LOW);
  digitalWrite(f,HIGH);
  digitalWrite(g,HIGH);
  break;
}

}
```