

Measuring Distance with LEDS

Start a new project in TinkerCAD

Initial Steps:

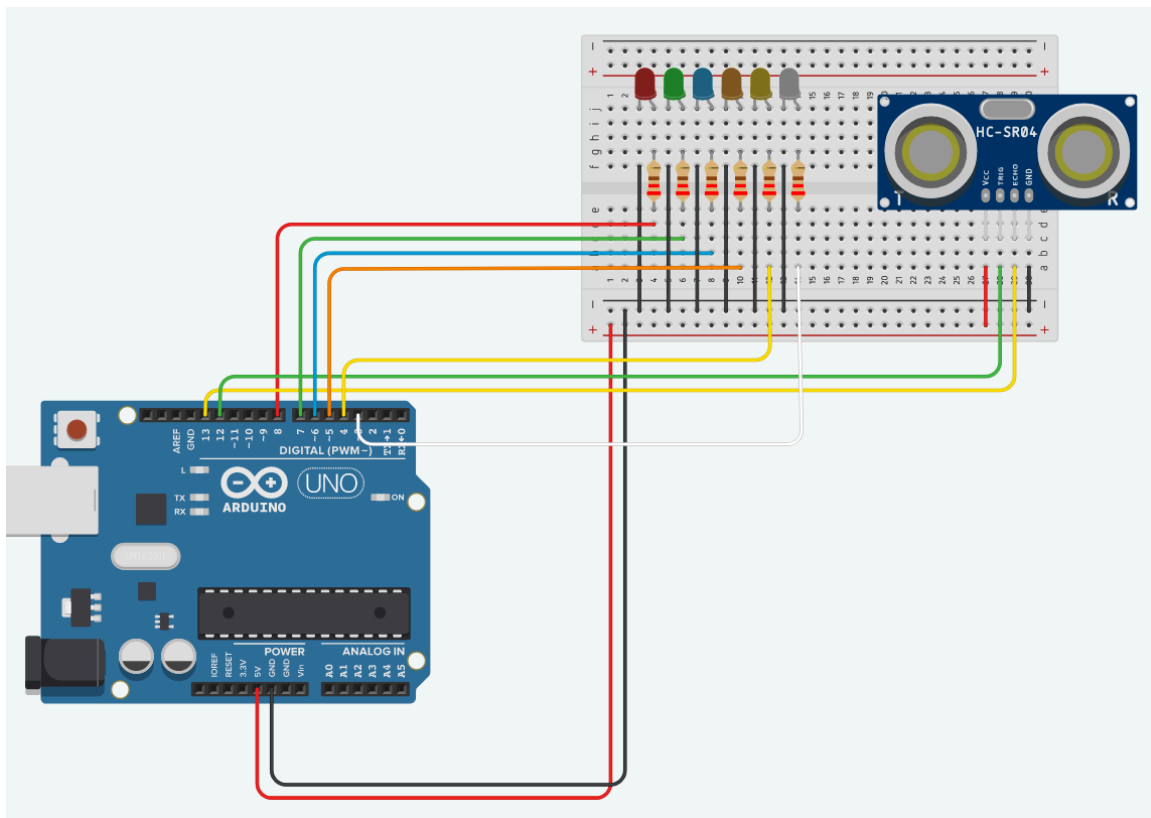
- Create a “PERSONAL” account on www.tinkercad.com
- In the Dashboard, select “Circuits” > Create new Circuit

Basic Components:

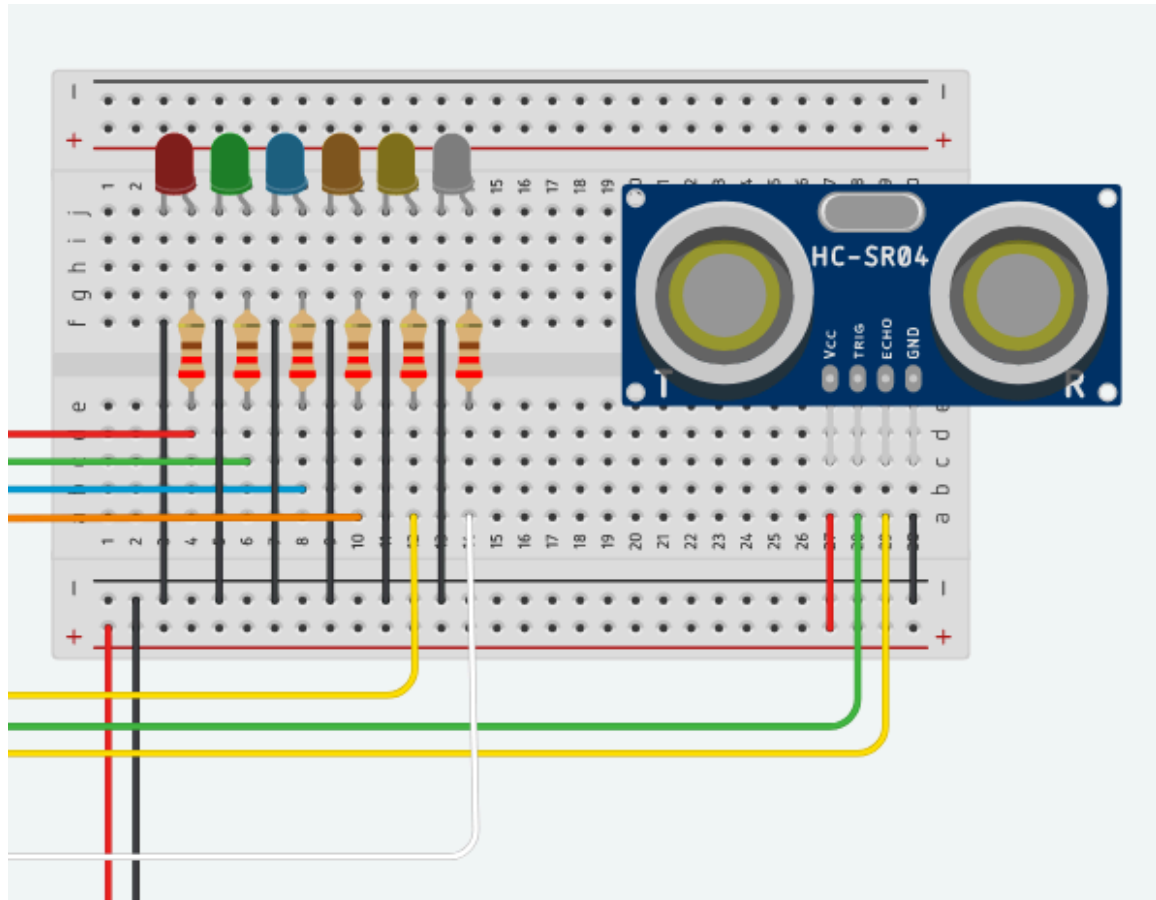
- Arduino Board
- Breadboard
- LED (6)
- 220 ohm Resistor
- Ultrasonic Sensor (4 pin version)

The Set Up

This setup has lots of wires for the LEDs and the Ultrasonic Sensor



Tech Studio 01 – Measuring Distance



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The Code

```
const int trig = 12;
const int echo = 13;

const int LED1 = 8; //red
const int LED2 = 7; //green
const int LED3 = 6; //blue
const int LED4 = 5; //orange
const int LED5 = 4; //yellow
const int LED6 = 3; //white

int duration = 0;
int distance = 0;

void setup()
{
  pinMode(trig , OUTPUT);
  pinMode(echo , INPUT);

  pinMode(LED1 , OUTPUT);
  pinMode(LED2 , OUTPUT);
  pinMode(LED3 , OUTPUT);
  pinMode(LED4 , OUTPUT);
  pinMode(LED5 , OUTPUT);
  pinMode(LED6 , OUTPUT);

  Serial.begin(9600);
}

void loop()
{
  digitalWrite(trig , HIGH);
  delayMicroseconds(5);
  digitalWrite(trig , LOW);

  duration = pulseIn(echo , HIGH);
  distance = (duration/2) / 28.5 ;
  Serial.println(distance);

  if ( distance <= 35 )
  {
    digitalWrite(LED1, HIGH);
  }
  else
  {

```

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```
    digitalWrite(LED1, LOW);
  }
  if ( distance <= 60 )
  {
    digitalWrite(LED2, HIGH);
  }
  else
  {
    digitalWrite(LED2, LOW);
  }
  if ( distance <= 210 )
  {
    digitalWrite(LED3, HIGH);
  }
  else
  {
    digitalWrite(LED3, LOW);
  }
  if ( distance <= 280 )
  {
    digitalWrite(LED4, HIGH);
  }
  else
  {
    digitalWrite(LED4, LOW);
  }
  if ( distance <= 350 )
  {
    digitalWrite(LED5, HIGH);
  }
  else
  {
    digitalWrite(LED5, LOW);
  }
  if ( distance <= 420 )
  {
    digitalWrite(LED6, HIGH);
  }
  else
  {
    digitalWrite(LED6, LOW);
  }
}
```

To get a read out of the distances – open the Serial Monitor in the lower left corner of the Code Window

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Add a Alert Buzzer for the “Red LED” Distance.

Pezo Buzzer
100 Ohm resistor
jumper wires

Set the buzzer on Pin 2.

