Ping Ultrasonic Range Finder

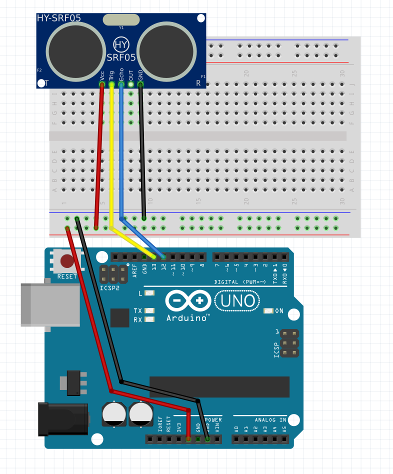
The SRF05 is an ultrasonic range finder. It detects the distance of the closest object in front of the sensor (from 3 cm up to 400 cm). It works by sending out a burst of ultrasound and listening for the echo when it bounces off of an object. It pings the obstacles with ultrasound. The Arduino or Genuino board sends a short pulse to trigger the detection, then listens for a pulse on the same pin using the [pulseIn()](https://www.arduino.cc/en/Reference/PulseIn) function. The duration of this second pulse is equal to the time taken by the ultrasound to travel to the object and back to the sensor. Using the speed of sound, this time can be converted to distance.

Hardware Required

* Arduino or Genuino Board
* Ultrasonic Range Finder SRF05
* hook-up wires

Circuit

The 5V pin of the SRF05 is connected to the 5V pin on the board, the GND pin is connected to the GND pin, the TRIG pin is connected to digital pin 13 on the board and the ECHO pin is connected to digital pin 12 on the board.



Code

const unsigned int TRIG\_PIN=13;

const unsigned int ECHO\_PIN=12;

const unsigned int BAUD\_RATE=9600;

void setup() {

pinMode(TRIG\_PIN, OUTPUT);

pinMode(ECHO\_PIN, INPUT);

Serial.begin(BAUD\_RATE);

}

void loop() {

digitalWrite(TRIG\_PIN, LOW);

delayMicroseconds(2);

digitalWrite(TRIG\_PIN, HIGH);

delayMicroseconds(10);

digitalWrite(TRIG\_PIN, LOW);

const unsigned long duration= pulseIn(ECHO\_PIN, HIGH);

int distance= duration/29/2;

if(duration==0){

Serial.println("Warning: no pulse from sensor");

}

else{

Serial.print("distance to nearest object:");

Serial.println(distance);

Serial.println(" cm");

}

delay(100);

}

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| Screen shot:  https://www.tinkercad.com/things/cTYT2hJVgmX-distance-sensor/editel?sharecode=Fr1-jNbIV4epRFNi5YzZaAEb71ie-l8vIdhwJFWtSn4 | | | | |
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| How it works?  The 5V pin of the SRF05 is connected to the 5V pin on the board, the GND pin is connected to the GND pin, the TRIG pin is connected to digital pin 8 on the board and the ECHO pin is connected to digital pin 7 on the board.  It works by sending out a burst of ultrasound and listening for the echo when it bounces off of an object. It pings the obstacles with ultrasound. The Arduino or Genuino board sends a short pulse to trigger the detection, then listens for a pulse on the same pin using the [pulseIn()](https://www.arduino.cc/en/Reference/PulseIn) function. The duration of this second pulse is equal to the time taken by the ultrasound to travel to the object and back to the sensor. Using the speed of sound, this time can be converted to distance. | | | | |