

Sharp Infrared proximity and Range Finder Sensor

Infrared proximity and range finder sensor made by Sharp. Part # [GP2Y0A21YK](#) has an analog output that varies from 3.1V at 10cm to 0.4V at 80cm. This sensor is not only detecting objects in the specified range, but also it can measure the distance of the detected object.

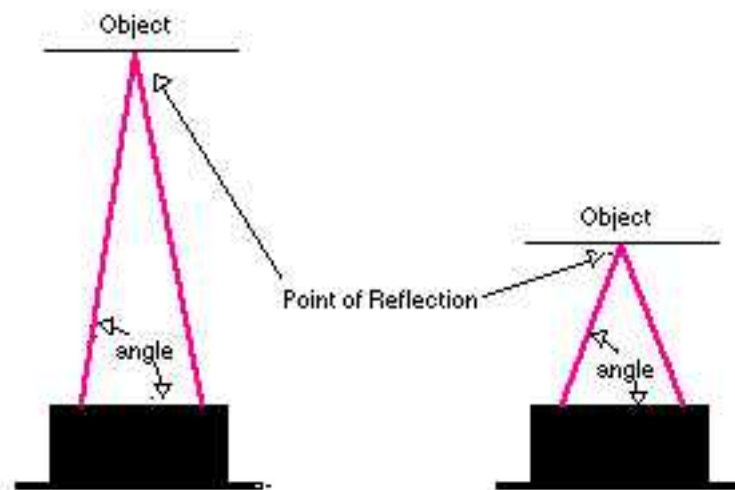
These connectors have three wires: ground, vcc, and the output signal. Because this sensor fire continuously and don't need any clock to initiate a reading cycle, it is easy to interface with any mirocontroller or Arduino



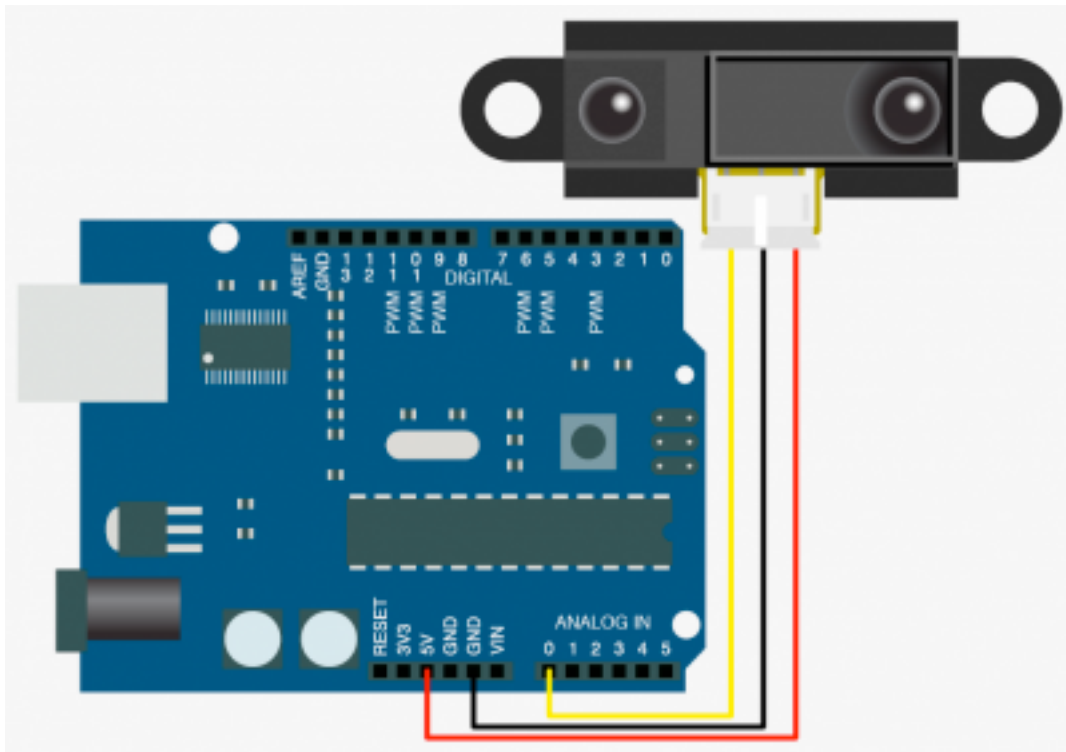
Theory of Operation

A pulse of IR light is emitted by the emitter. This light travels out in the field of view and either hits an object. If the light reflects off an object, it returns to the detector and creates a triangle between the point of reflection, the emitter, and the detector.

The angles in this triangle vary based on the distance to the object. The CCD array can then determine what angle the reflected light came back at and therefore, it can calculate the distance to the object.



Infrared Sharp proximity sensor with Arduino



```
int sensorPin = 0; //analog pin 0
void setup(){
  Serial.begin(9600);
}
void loop(){
  int val = analogRead(sensorPin);
  Serial.println(val);

  //just to slow down the output - remove if trying to
  catch an object passing by
  delay(100);
}
```