Programming For Engineers

Reading a Detection Sensor Using Arduino UNO

by
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Chapter's Information

- Purpose
  - The purpose of this writing is to guide students to detect an infrared sensor using ADUINO UNO.

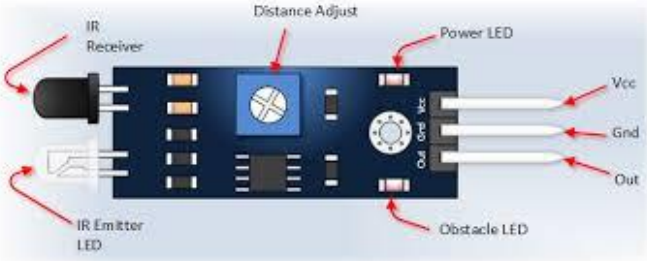
- Required materials

  We require the following materials in order to perform this project:

  a) ARDUINO UNO board
  b) ARDUINO USB to PC cable
  c) An infrared detection sensor
  d) Prototype breadboard
  e) Necessary jumper cable

Project Background

- Below are the pin description and the circuit diagram of the infrared detection sensor.



http://henrysbench.capnfatz.com/henrys-bench/arduino-sensors-and-input/arduino-ir-obstacle-sensor-tutorial-and-manual/

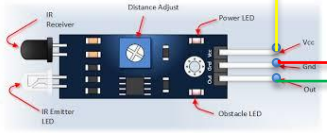
- Here are what the pins are for:
  a. Pin Vcc is the supply voltage. We use 5V from ARDUINO.
  b. The middle pin is the ground pin.
  c. Pin Out is the voltage output. We connect this pin to ARDUINO digital. This is the voltage corresponding to detection.
  d. Distance adjustor knob can be used to adjust the distance detection.

Step-by-step Actions

(1) Create Electrical Connection. Here, we use Digital Pin 7 to read the output signal.

(2) We write program to detect object.

```
int pinDetect = 7;
int detect;
void setup() {
     Serial.begin(9600);
     pinMode
     (pinDetect, INPUT); }
void loop() {
     detect = digitalRead(pinDetect);
     Serial.println(detect);
     delay(100); }
```



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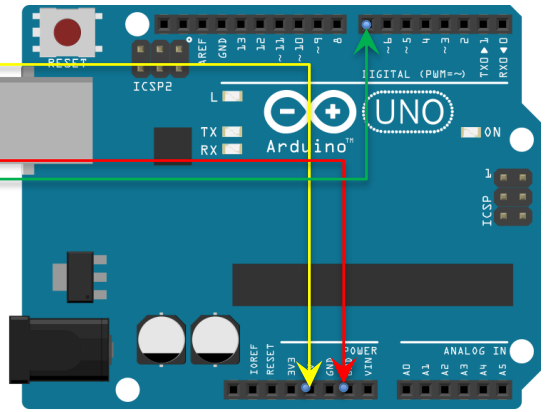

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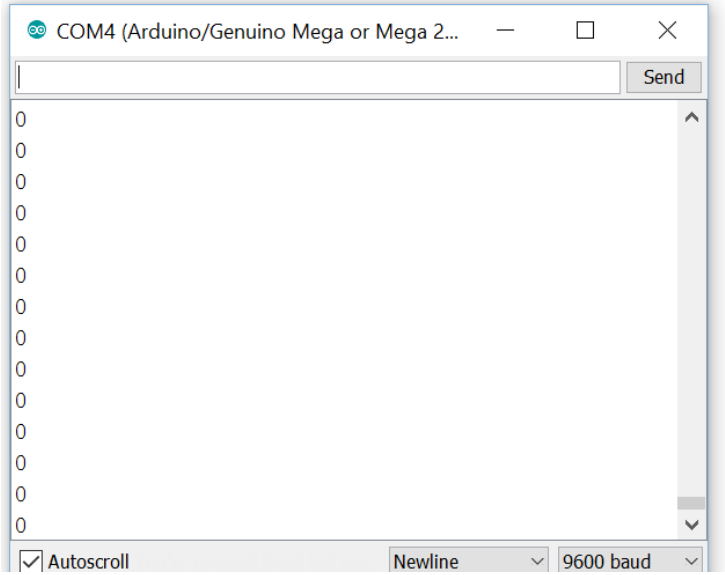
(3) Upload the code to ARDUINO program. Open the monitor to check the detection.

Exploration



- Why don't we perform the followings?
  i. Put your hand on the sensor. Did the number change from zero to one?
  ii. Adjust the distance but adjusting the sensor distance adjustor and repeat no i.

Reflections

- We have learn how to:
  - Program and download program using ARDUINO UNO.
  - Use digital pin to read logic status.
  - Use infrared sensor to detect object.
  - Program the ARDUINO to read digital HIGH/LOW status.