Programming For Engineers

Reading a Switch Using Arduino UNO

by
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Communitising Technology

- Purpose
  - The purpose of this writing is to guide students to read a switch using ADUINO UNO.
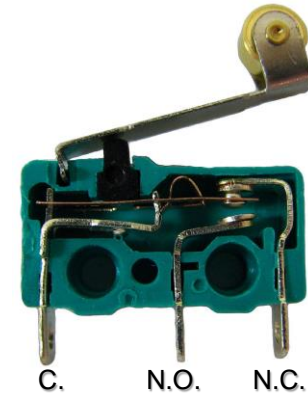
- Required materials

  We require the following materials in order to perform this project:
  a) ARDUINO UNO board
  b) ARDUINO USB to PC cable
  c) A limit switch
  d) Prototype breadboard
  e) Necessary jumper cable

Project Background

- Below are the pin description and the circuit diagram of the switch.

C.   N.O.   N.C.

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- Here are what the pins are for:
  a. Pin N.O. is the supply voltage. We use 5V from ARDUINO.
  b. The right pin N.C. is the ground pin.
  c. Pin Out C. is the voltage output. We connect this pin to ARDUINO digital. This is the voltage corresponding to detection.

Step-by-step Actions

(1) Create Electrical Connection. Here, we use Digital Pin 4 to read the output signal.

(2) We write program to detect object.

```
int pinSwitch = 4; int detectOnOff;
void setup() {
    pinMode(pinSwitch,INPUT);
    Serial.begin(9600); }
void loop() {
    int detectOnOff =
    digitalRead(pinSwitch);
    if(detectOnOff == 0)
        Serial.println("Switch On");
    else
        Serial.println("Switch Off"); delay(100); }
```
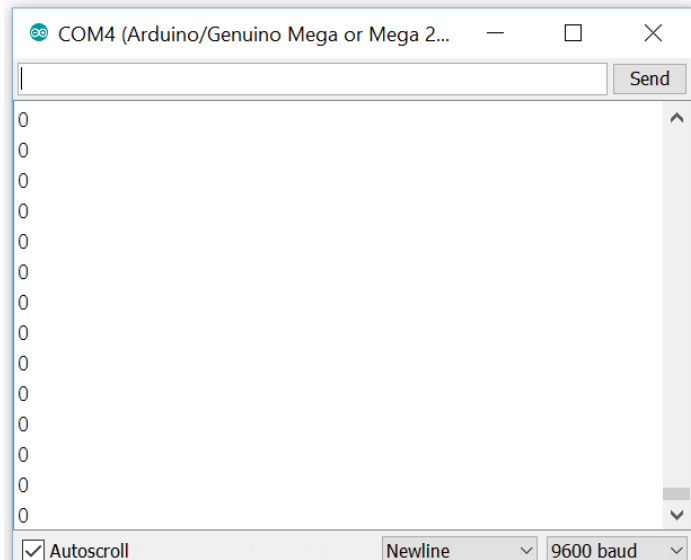
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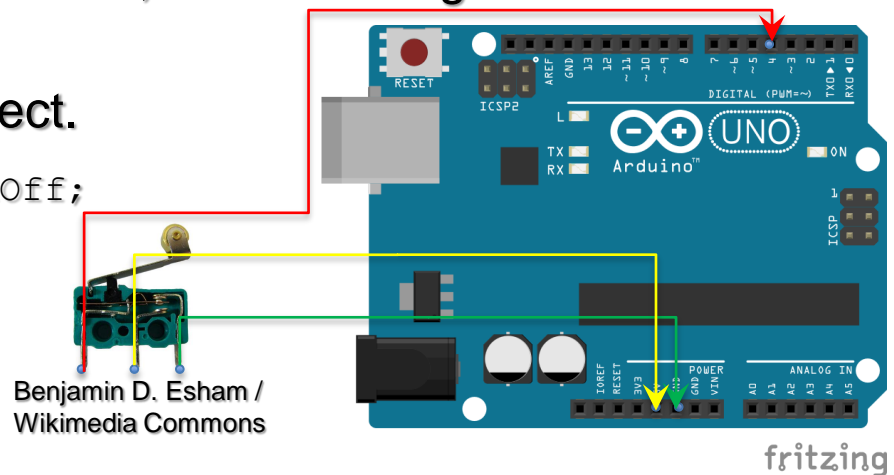
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(3) Upload the code to ARDUINO program. Open the monitor to check the detection.

Exploration

- Why don't we perform the followings?
  i. Press the switch down and release. Did the number change from "Switch On" to "Switch Off" and vice versa?
  ii. Add LED to your circuit. Make LED on when the switch press down and make LED off when the switch release.

Reflections

- We have learn how to:

  - Program and download program using ARDUINO UNO.

  - Use digital pin to read logic status.

  - Use limit switch to detect ON and OFF.

  - Program the ARDUINO to read digital HIGH/LOW status.