

Programming For Engineers

Reading a Potentiometer Using Arduino UNO

by

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Chapter's Information

- Purpose

- The purpose of this writing is to guide students to read potentiometer using ARDUINO 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 potentiometer
- d) Prototype breadboard
- e) Necessary jumper cable



Project Background

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



- Here are what the pins are for:
 - a. Pin 1 is the supply voltage. We use 5V from ARDUINO.
 - b. Pin 2 is the voltage output. We connect this pin to ARDUINO analog pin A0. This is the voltage corresponding to the potentiometer.
 - c. Pin 3 is the ground pin.

<https://upload.wikimedia.org/wikipedia/commons/b/b5/Potentiometer.jpg>

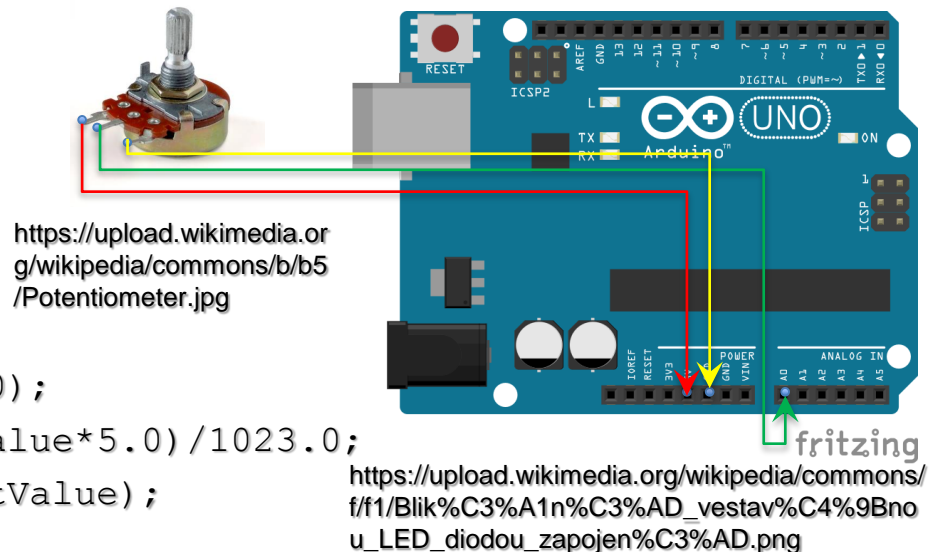


Step-by-step Actions

(1) Create Electrical Connection.

(2) We write program to read potentiometer voltage. We convert that voltage into 5v voltage.

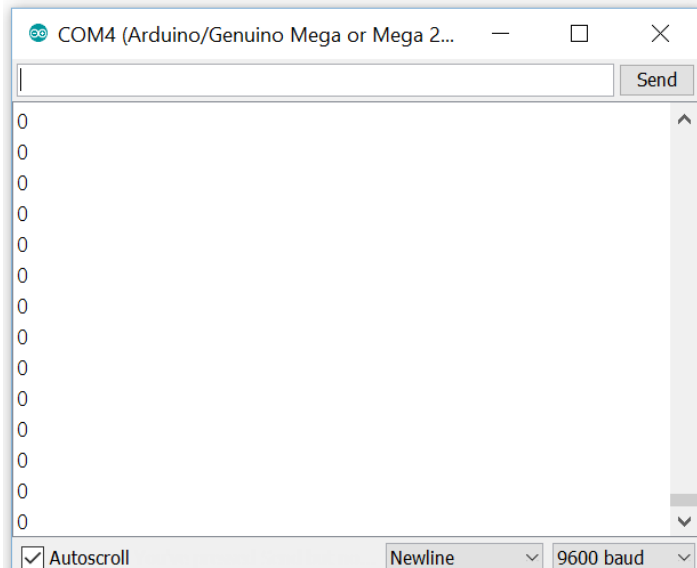
```
int voltValue;  
float actualVoltValue;  
void setup() {  
    Serial.begin(9600);  
}  
void loop() {  
    voltValue = analogRead(A0);  
    actualVoltValue = (voltValue*5.0)/1023.0;  
    Serial.println(actualVoltValue);  
    delay(100); }
```



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



Exploration



- Why don't we perform the followings?
 - i. Rotate the potentiometer shaft. Did the number change from zero to five or vice versa?
 - ii. Make LED blinking when the potentiometer reading is above 2.5V!



Reflections

- We have learn how to:
 - Program and download program using ARDUINO UNO.
 - Use analog pin to read voltage.
 - Use potentiometer to measure voltage.
 - Program the ARDUINO to read analog voltage.

