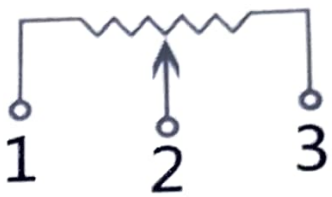
Practical 3

Controlling the LED blink rate with the potentiometer interfacing with Arduino

Introduction: A potentiometer is a variable resistor with a knob that allows altering the resistance of the potentiometer. The potentiometer manipulates a continuous analog signal, which represents physical measurements. The potentiometer is used with Arduino to control the blink rate of the LED. The potentiometer is an adjustable resistor, and its operating principle is shown in the following figure:

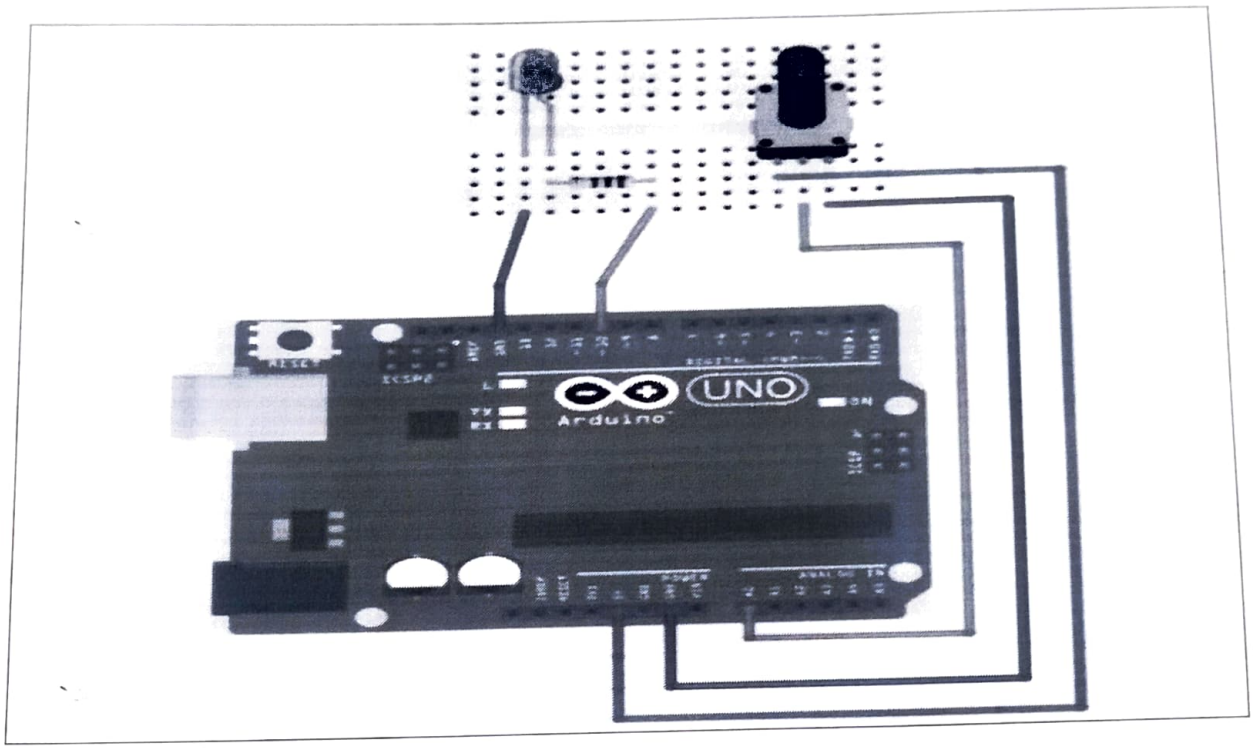


Hardware Required:

Component	Quantity
Arduino Uno	1
Bread board	1
220Ω current limiting resistor	1

5mm LED	1
10KΩ Potentiometer	1
Jumper Wires	Several
Supporting USB data cable	1

Working Diagram:



Steps of working

1. Insert the potentiometer into your breadboard and connect its center pin to the analog pin A2 and the remaining pin to GND on the breadboard.

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2. Insert the LED into the breadboard. Attach the positive leg (the longer leg) to pin 13 of the Arduino via the 220-ohm resistor, and the negative leg to GND.
3. Upload the code as given below.
4. Turn the potentiometer to control the brightness of the LED and move the position of pin 2 by rotating the knob, changing the resistance value from pin 2 to both ends.
5. Observe the changes in the blinking rate of the LED.

The Sketch

This sketch works by setting pin A2 as for the potentiometer and pin 9 as an OUTPUT to power the LED. After that the run a loop that continually reads the value from the potentiometer and sends that value as voltage to the LED. The voltage value is between 0–5 volts, and the brightness of the LED will vary accordingly.

bservation Table:

Sr. no.	Voltage	Light Intensity
1		
2		
3		
4		
5		