

A8: Use a Variable Resistor to Control the Brightness of an LED

1001-act8 Introduction to Electronics

Summary

Now that you know how to turn on an LED and hook it up to a button, you will learn how to control the brightness of one. As demonstrated in the extension of act6, increasing resistance decreases brightness and vice versa.

A variable resistor is a resistor that has a changeable resistance that can be set with a dial. This is what you will use to control the brightness of the LED.

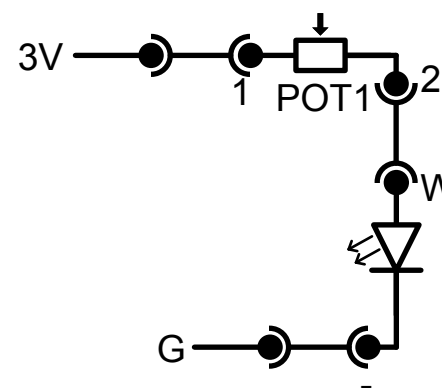
What You Need

- JackBord
- JackBord TOP
- 10 x 10cm Jumper Wires
- Means of viewing [Using the TOP Part 1: Attaching the TOP to the JackBord tmt3Nnbl](#)
- The "Using the JackBord TOP" book from tmt3Nnbp

Instructions

1. Making this circuit is simple. First, make sure that the JackBord TOP is already connected to the JackBord power pins and the two power LEDs are on (Check 1001-act5 if not). Turn off the JackBord.
2. Take one jumper and connect any one of the yellow 3V pins on the outer edge of the TOP to pin 1 of the variable resistor POT1.
3. Take another jumper and connect pin 2 of POT1 to the white LED on the TOP. The pin is labelled 'W'.
4. Finally, use one more jumper to connect the corresponding '-' pin to one of the green ground pins on the TOP.
5. If done correctly, the white LED should turn on when you turn on the JackBord and change brightness when the knob of the variable resistor is turned. If it does not, check your connections and follow the steps again. Also compare your circuit to the pictures shown right.

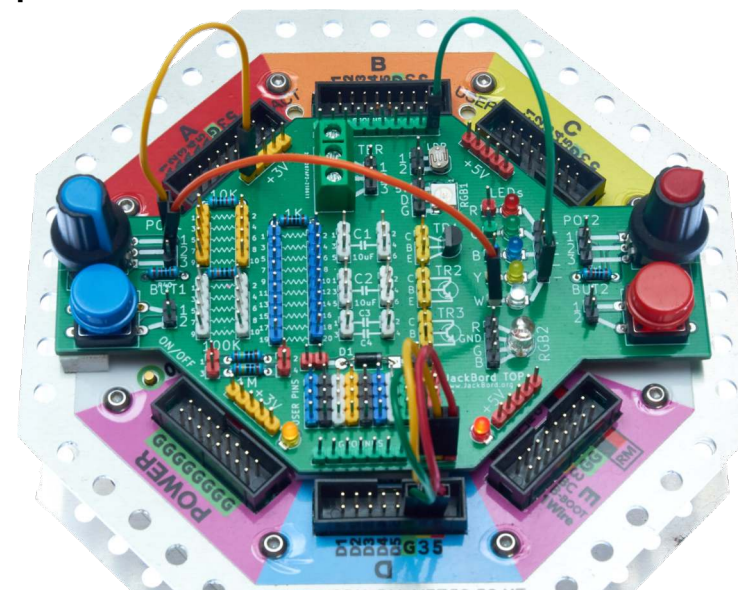
Circuit Diagram



TOP 3V rail pin	TOP POT1 pin 1
TOP POT1 pin 2	TOP LED pin W
TOP LED - pin (Corresponding to white LED)	TOP Ground pin

The table above contains the connections in the circuit diagram. Simply connect a jumper from the left column pins to the corresponding right column pin in the same row.

Completed Circuit



Extension

- Add a second LED to the circuit and control its brightness using the second variable resistor.
- See if you can add a push button switch to your circuit so you can turn it on and off which changing its brightness.