Photoresistor

Overview

In this lesson, you will learn how to use the photoresistor to control the brightness of led

Component Required:

1 x Mega2560 R3

1 x 830 tie-points breadboard

1 x 220 ohm resistors

1 x 10k ohm resistor

1 x Photoresistor (Photocell)

7 x M-M wires (Male to Male jumper wires)

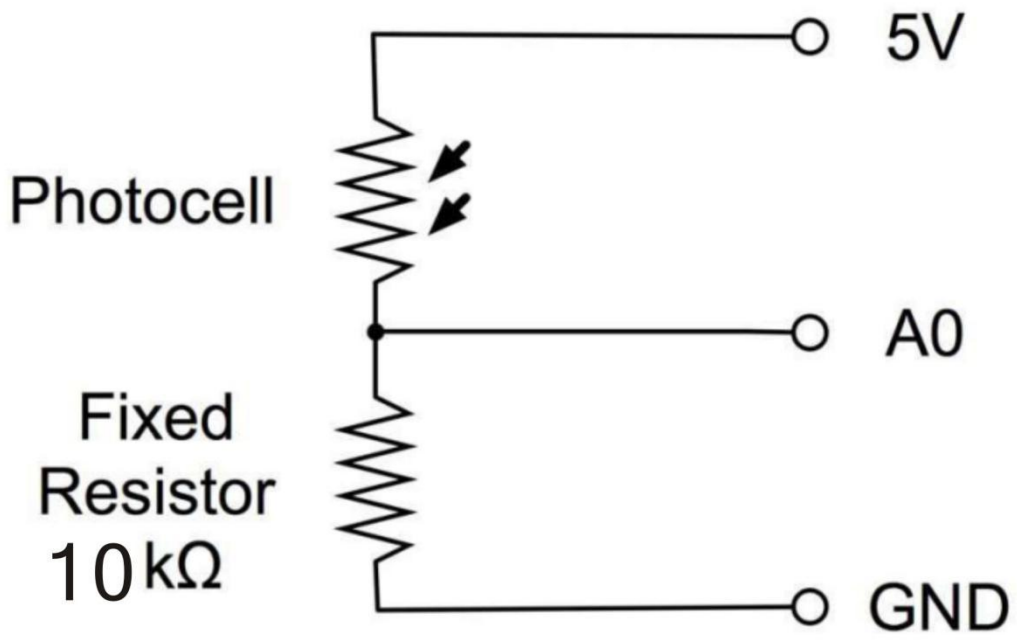
Component Introduction

PHOTOCELL:

The photocell used is of a type called a light dependent resistor, sometimes called an LDR. As the name suggests, these components act just like a resistor, except that the resistance changes in response to how much light is falling on them.

This one has a resistance of about 50 kΩ in near darkness and 500Ω in bright light. To convert this varying value of resistance into something we can measure on an MEGA2560 R3 board's analog input, it needs to be converted into a voltage.

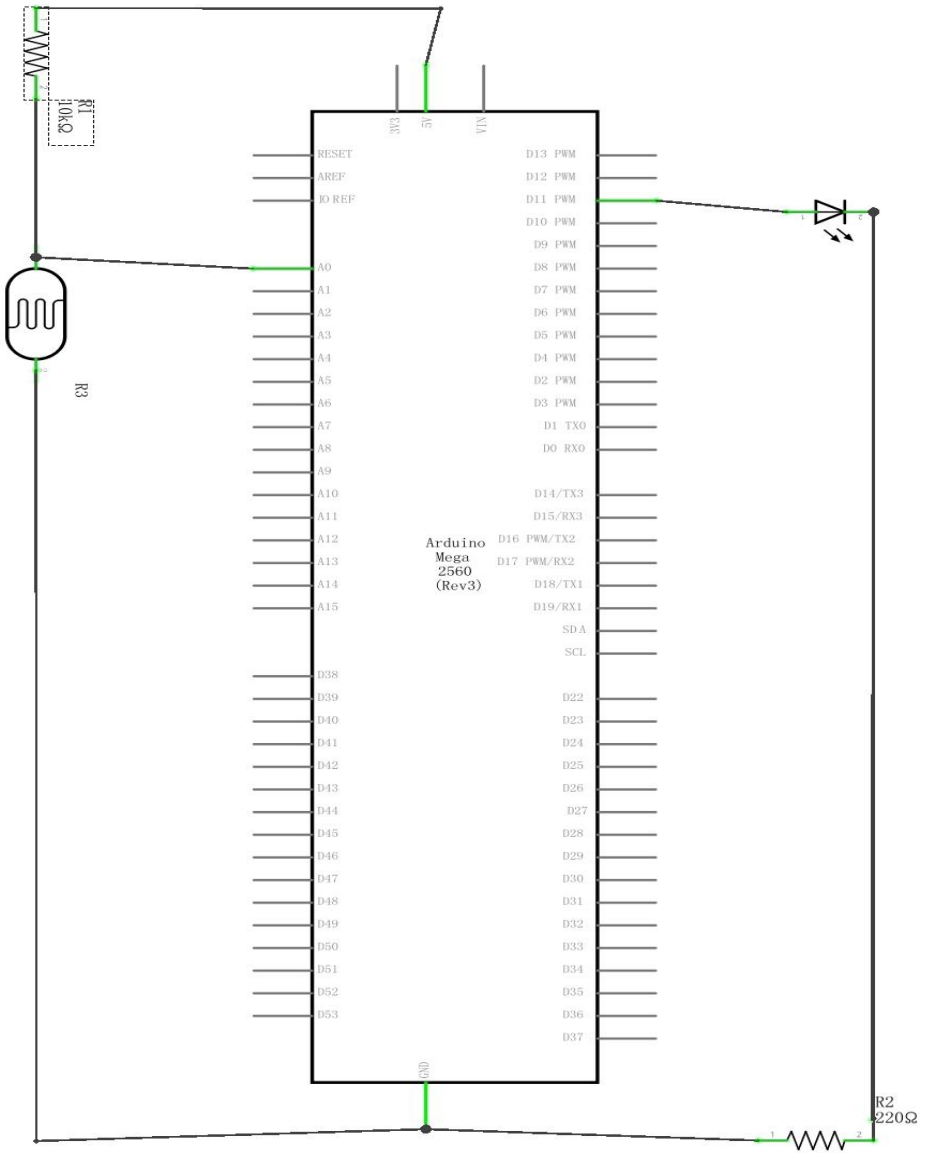
The simplest way to do that is to combine it with a fixed resistor.



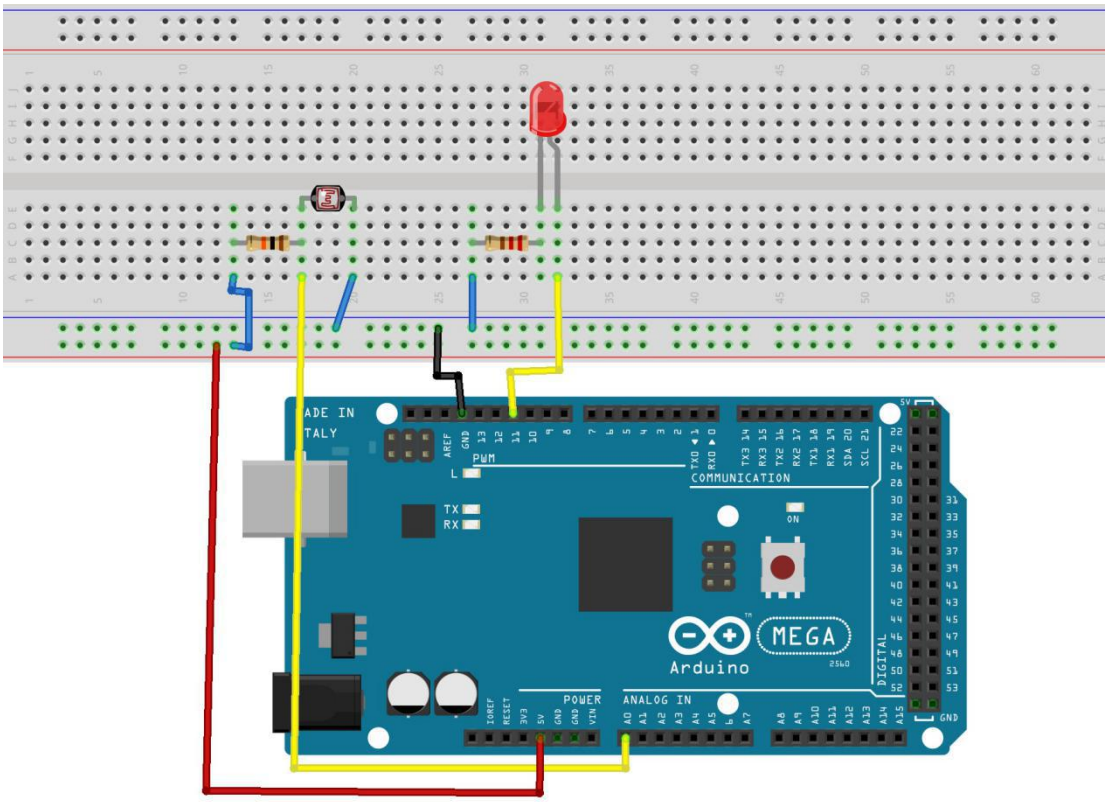
The resistor and photocell together behave like a pot. When the light is very bright, then the resistance of the photocell is very low compared with the fixed value resistor, and so it is as if the pot were turned to maximum. When the photocell is in dull light, the resistance becomes greater than the fixed 10 kΩ resistor

Connection

Schematic



Wiring diagram



Code

After wiring, please open the program in the code folder- “Photocell” and click UPLOAD to upload the program. See “Blink” for details about program uploading if there are any errors.

The darker the light detected by the photoresistor, the brighter the led.