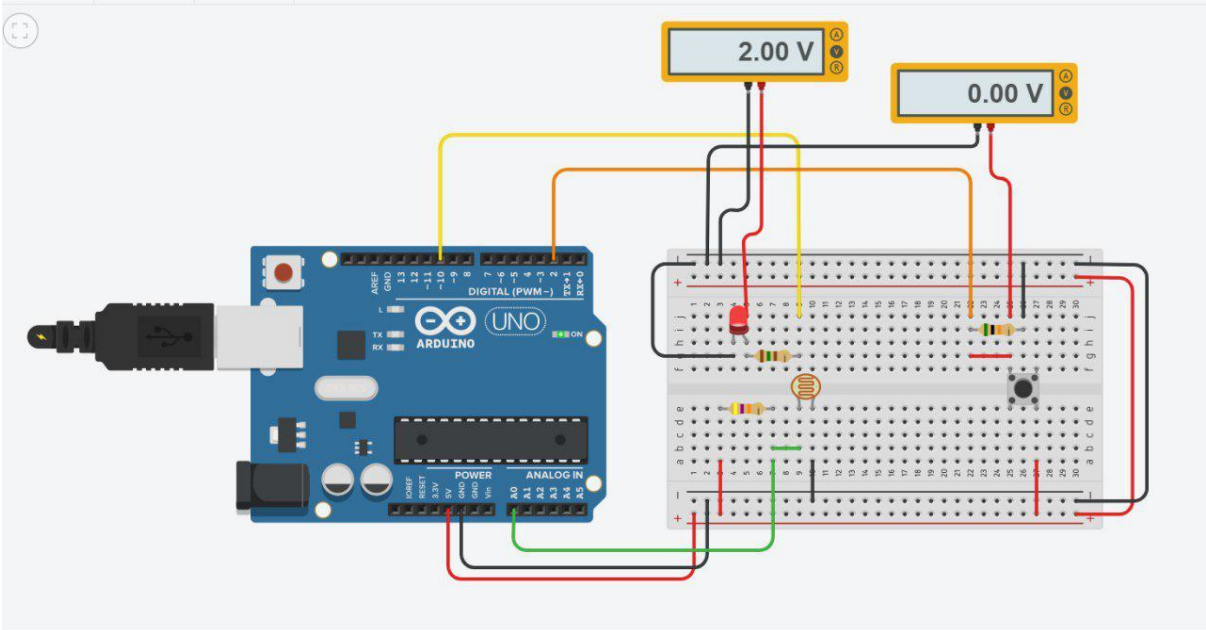
AIM: **Design an automatic night lighting system such the system is only activated when the master control switch is pressed. a) Below 50% value of full brightness led blinks with a freq. of 500 msec. b) Above 50% value of full brightness led blinks with a freq. of 100 msec.**

CIRCUIT:



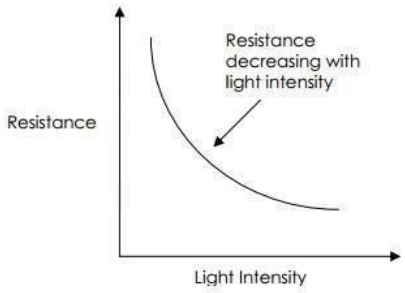
COMPONENTS USED:

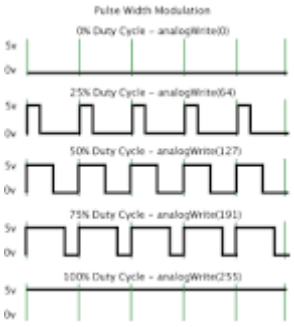
- **Breadboard**
- **Arduino Uno**
- **Wires**
- **Push Button**
- **LED**
- **Multimeter**
- **Resistance**
- **LDR(Light Dependent Resistor)**

CONCEPT USED:

Pulse Width Modulation, or PWM, is a technique for getting analog results with digital means. Digital control is used to create a square wave, a signal switched between on and off. This on-off pattern can simulate voltages in between full on (5 Volts) and off (0 Volts) by changing the portion of the time the signal spends on versus the time that the signal spends off. The duration of "on time" is called the pulse width. To get varying analog values, you change, or modulate, that pulse width. If you repeat this on-off pattern fast enough with an LED for example, the result is as if the signal is a steady voltage between 0 and 5v controlling the brightness of the LED.

LDR(Light Dependent Resistor): A photoresistor or light dependent resistor is a component that is sensitive to light. When light falls upon it then the resistance changes. Values of the resistance of the LDR may change over many orders of magnitude the value of the resistance falling as the level of light increases.





Learning Outcome :

1.) A photoresistor is a light-controlled variable resistor. The resistance of a photoresistor decreases with increasing incident light intensity; in other words, it exhibits photoconductivity.
2.) Pulse Width Modulation, or PWM, is a technique for getting analog results with digital means.

Precautions:

- If there is smell of burning, power off the Arduino.
- Choose suitable resistance while voltage dividing. (LDR)
- Check twice for the connection made, then power the Arduino.