AIM: Design an automatic night lighting system such the system is only activated when the master control switch is pressed. a) Below 300 lux led glows with full brightness. b) Above 300 lux led glows with 50% brightness

APPARATUS REQUIRED:

Arduino UNO ,Breadboard, red led, switch ,LDR(light dependent resistor),resistors, connecting wires.

THEORY:

CONCEPT USED :

A light-emitting diode(LED) is a two-lead semiconductor light source. It is a p–n junction diode that emits light when activated. LDR(light dependent resistor) it is a sensor which is used to convert non electrical signals into electrical signals with the help of external source.

- Arduino UNO
- Breadboard
- Coding

LEARNING AND OBSERVATION:

When a switch is ON Arduino will receive 5V power supply but when switch is OFF it will still receive some voltage from the environment. So, the ground connection is applied after a switch in order to give 0V

and a resistance greater than arduino's resistance is connected in order to operate when switch is ON else it will also show 0V.I have learnt to use Arduino board an how to set up the circuit using breadboard. The Arduino board also has ~ sign in digital pins which is known as PWM(pulse width Modulation) ;

OBSERVATION:

When Switch is pressed & lux is less than 300 then Led will glow with full brightness, else it will glow with 50% brightness.

PROBLEMS AND TROUBLESHOOTING:

Wires were inserted in wrong holes which were not connected mistakenly, was checked again and was corrected.

The wrong number of digital pins were entered in code as originally inserted was checked again and was corrected.

PRECAUTIONS:

- Wires should be properly inserted in Arduino and breadboard.
- Breadboard circuit should be correct.
- Declaration and Use of the digital pin should be the same.
- Connections should be neat, clean and tight.

LEARNING OUTCOMES:

- Coding concepts used in Arduino.
- Use of digitalWrite ,digitalRead, HIGH and LOW.
- Use of pin mode and delay.
- Use of push button

CIRCUIT DIAGRAM: