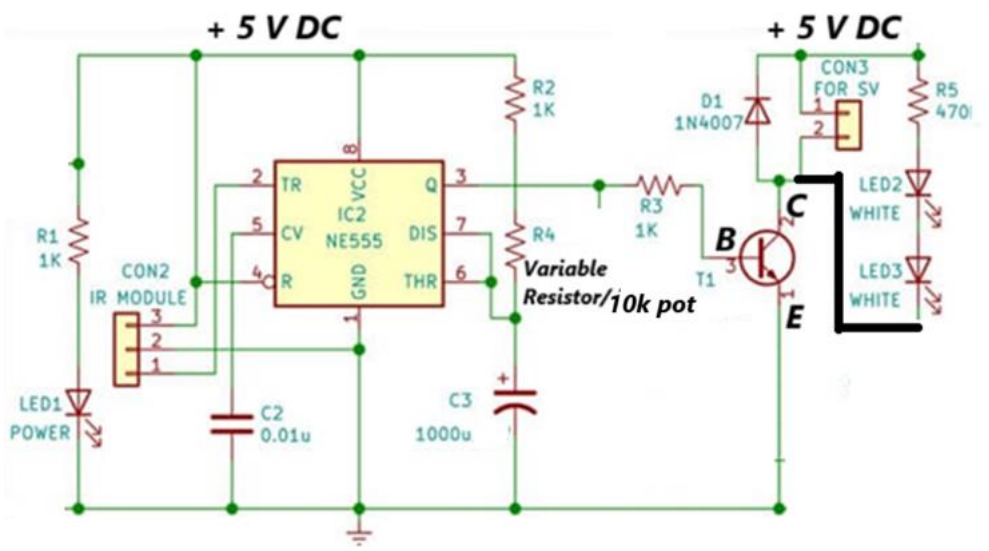
ECE101: Basics of Electrical and Electronics Circuits

Mini Project-3

Wash Basin Tap Control using IR sensor and 555 Timer IC:



Measurements/Observations

S. No.	Capacitor (C_3) Value	Charging cycle resistor value	ON Time duration, Calculated = $R_{eff.}C*\ln(3)$	ON Time duration Measured by stopwatch (with load running)	Identify the Mode of 555 Timer IC
For given values	1000 uF	1k			
Set the circuit to get Time ON as 5 sec					

- Test the circuit with solenoid valve to open a water tap and learn to control the water running time duration. Note the desired effective resistance and Capacitor values.
- Also control the IR sensor applicable distance and find out the maximum sensing distance to turn ON the circuit.

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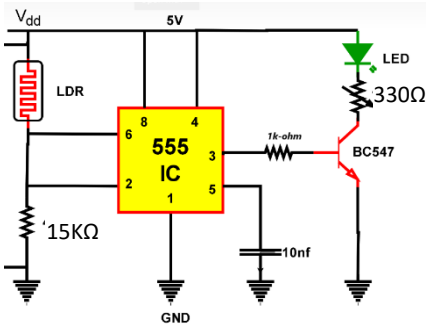
Mini Project-4

Street Light Automation using LDR and 555 IC:



Identify the mode of 555 IC: Monostable/Astable/Bistable

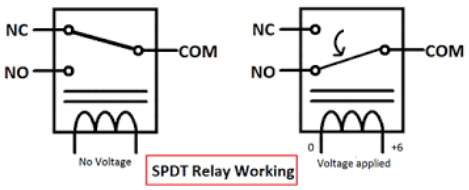
Run the circuit to operate with LED/DC Motor/Bulb

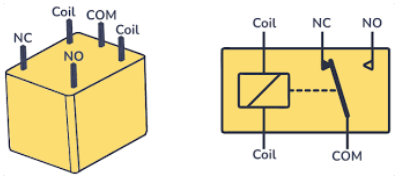
Also identify the transistor mode of operation (saturation/ cut-off / active) by following observations:

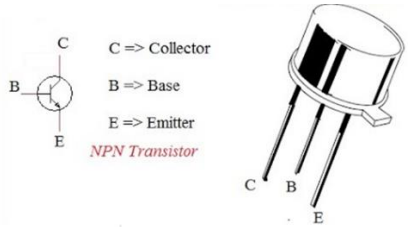
Output (LEDs)	V_{BE}	V_{CE}	I_B	I_C	Transistor Mode (BC547)
OFF					
ON					

- Control the LED glow to optimal level by controlling the current through it using variable resistor.
- Test the circuit to operate a DC Motor and Bulb using relay.

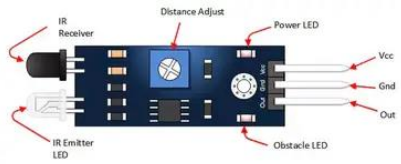
Supplementary Readings: Electromagnetic Relay Switch:







CL-100 n-p-n Transistor



IR Module