# Automatic Street Light Controller

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# Why this project ?

Switching of street lights from time to time manually becomes tedious when it is required 365 days without any break. Since we have easily available electronic components, we can build a simple and a very cheap circuit that can do the work hassle free.

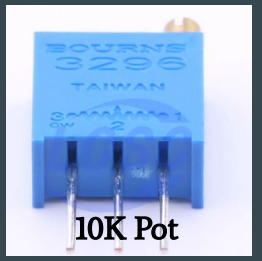
Since the circuit has a feedback of the ambient lighting, i.e turns ON the street light when it’s about to dusk and turn OFF when its about to dawn, by this way we can save electricity, avoid unwanted lighting, and switch it exactly when it’s required.

# Parts Required

1. LM555 * 1
2. LDR(10k variant) * 1
3. 10k Trimmer Potentiometer * 1
4. 1n4007 Diode * 1
5. 5v Relay * 1
6. 0.1µF Ceramic Capacitor * 1
7. Screw Terminals * 2


LDR

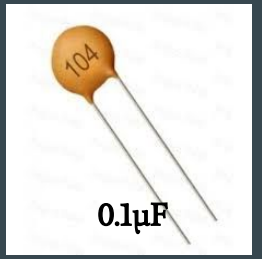
LM555



10K Pot


1n4007

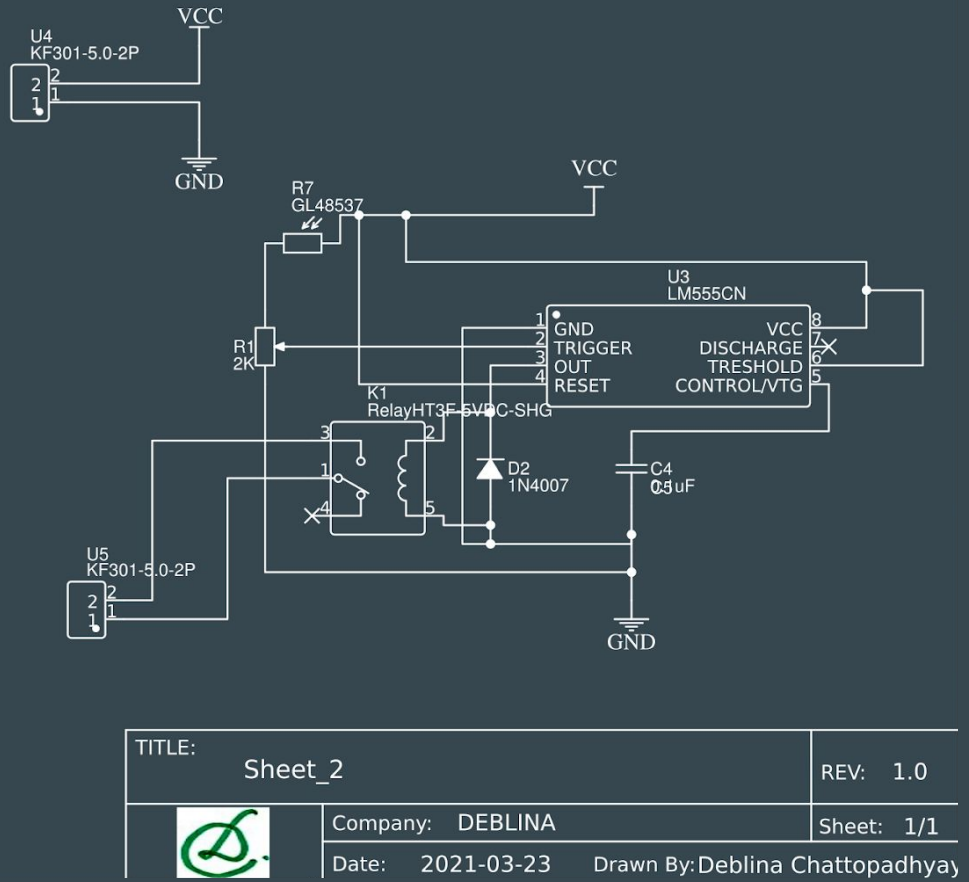
5v Relay



0.1µF


Screw Terminal

# Schematic Diagram



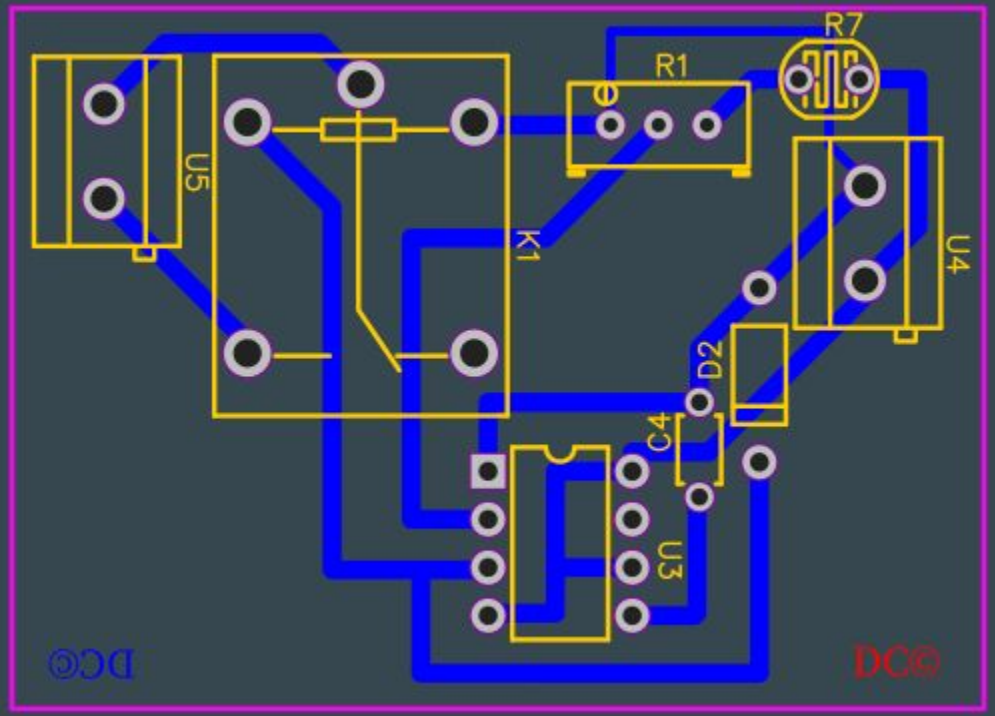
# Circuit Working

Here the Timer 555 works as a bistable multivibrator or a latch, which turns it output pin 3(output) high or low for the input triggering on pin 2(trigger). The pin 4(reset) is tied to Vcc so that the SR latch inside never resets asynchronously.

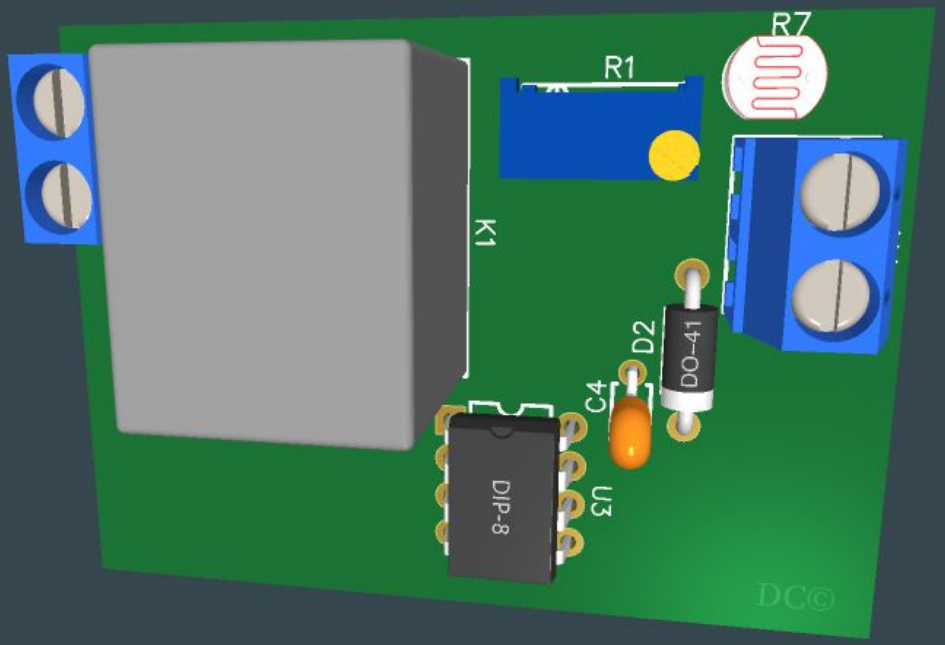
The LDR(light dependent resistor) as the name suggests it changes its resistance with intensity of light and it is inversely proportional. The LDR and the trimpot together acts as a potential divider. And it is configured in such a way that when light falls(during dawn) on the LDR the output voltage increases from the potential divider and during dusk the output voltage drops.

This output voltage is now connected to the trigger pin(2) of the timer 555. From this internal circuit diagram of LM555 pin 2 is connected to the negative input of the comparator which is responsible for setting the RS latch. When the output voltage from the potential divider exceeds a threshold voltage i.e ⅓ of Vcc the output of the IC turns OFF which in turn drives the Relay OFF disconnecting the contacts Switching OFF the High Voltage Street Lamps, And during dusk the output voltage of the potential divider rises above ⅓ of Vcc and sets the RS Latch and the output of the IC goes High which in turn drives the Relay, switching ON the Street Lamps.

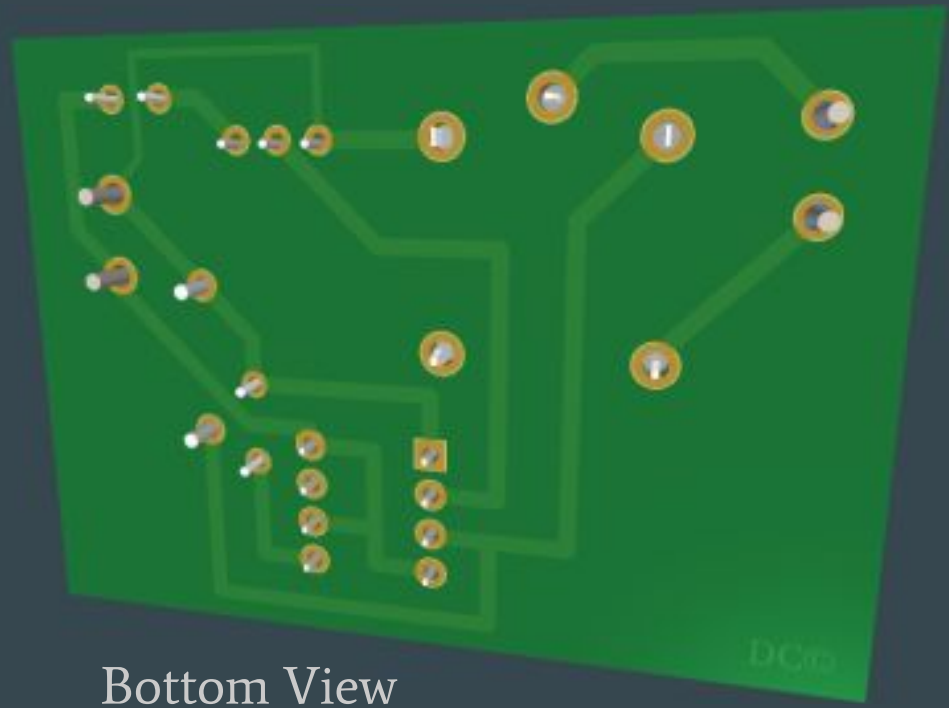
# PCB Layout



# 3D Model




Top View




Bottom View

# Conclusion

With the help of this project we will be able to automate and innovate our cities, making it smart. It will consume less power and its an efficient and accurate way of switching the street Lights.

# Thank You!!!

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