Electronic Circuits Project

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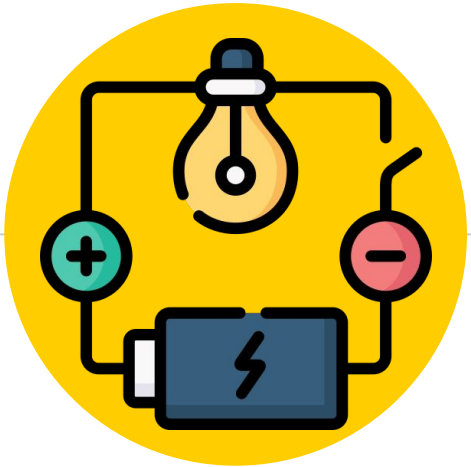
LED Light Intensity Controller Circuit Using MOSFET



1 Project Description

LED Light Intensity Controller Circuit Using MOSFET

Project Description

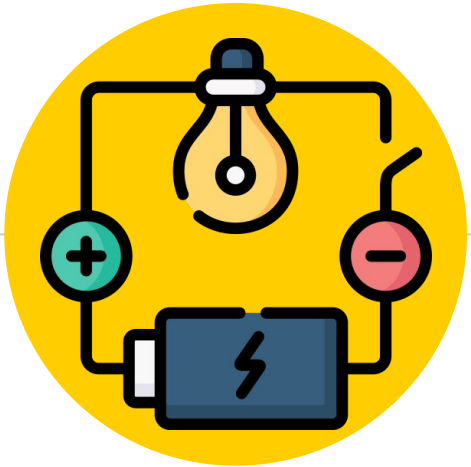
- The LED Light Intensity Controller simply controls the brightness of the LED light using only a small amount of components including an IRF540 MOSFET which increases and decreases the brightness of the LED light using two Micro Switch.

Project Objective

- The consumption of power at home makes up great energy usage/consumption. This project aims for energy saving and to reduce power consumption at homes using a minimum amount of hardware components.
- This circuit is capable of dimming in or dimming out any light source and can be used on a wider perspective for controlling any light brightness through push-button pressing.

Project Applications

- We need to use some rooms for many different purposes, and these different functions call for varying amounts of light. This is when the light intensity controller circuit comes into place; a useful electrical circuit (switch) that lets you adjust light levels from nearly dark to fully lit by simply pressing a button.



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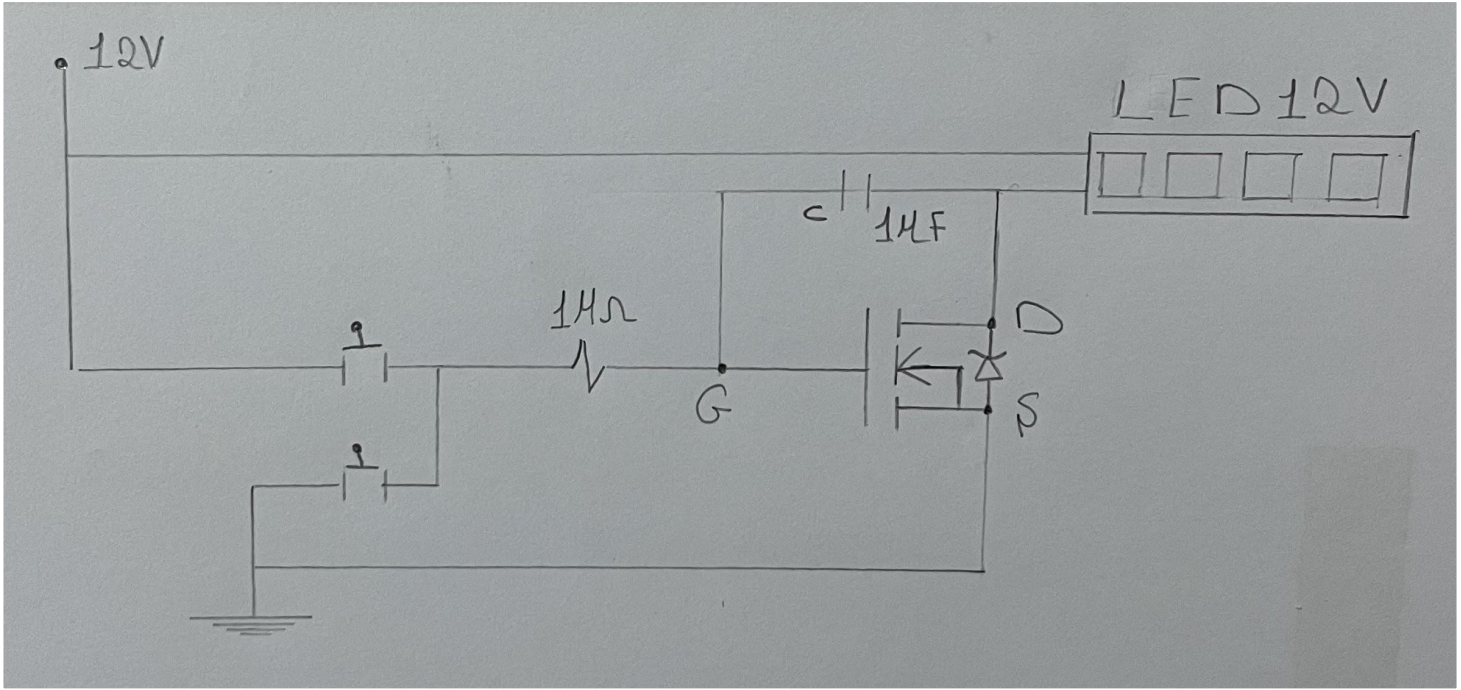
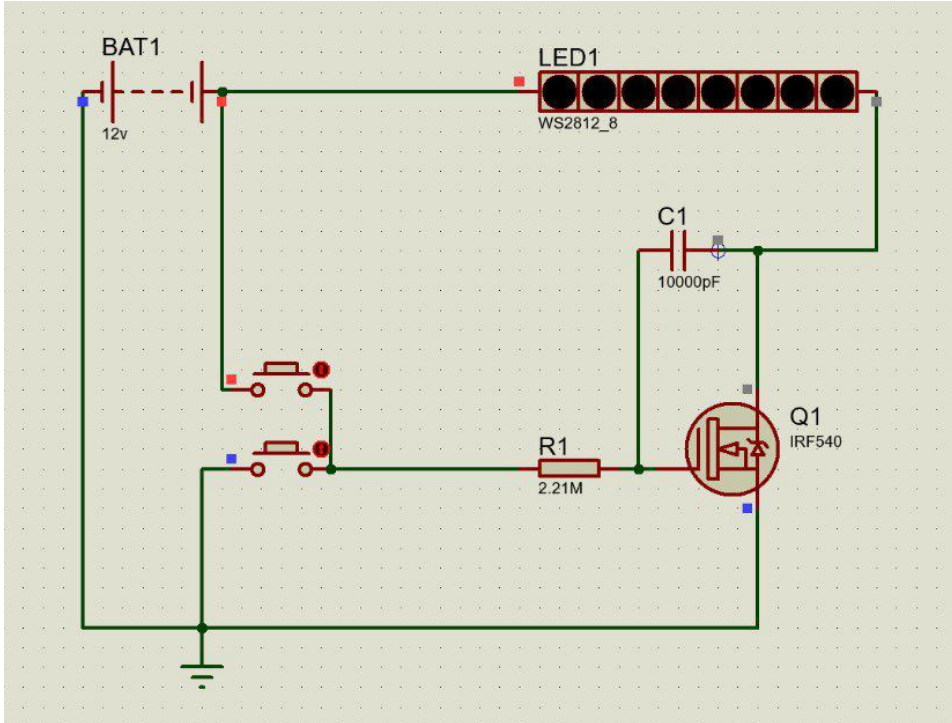
Circuit Diagram

LED Light Intensity Controller Circuit Using MOSFET

Circuit Diagram

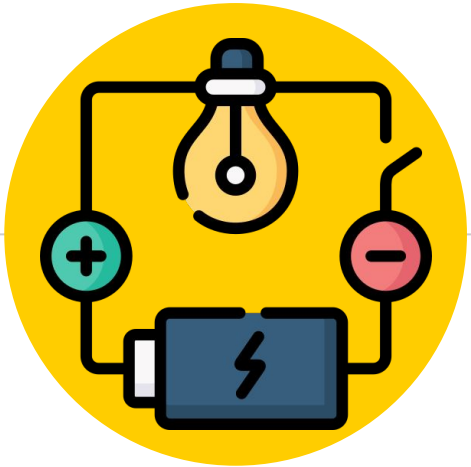


Circuit Diagram Using Proteus



Hardware Components

Components	Values	Cost
MOSFET (1)	IRF540	8 L.E
Resistor (1)	1 MΩ	0.50 L.E
Capacitor (1)	1 µF	1 L.E
Push Buttons (2)	-	1 L.E/Each
LED	12V	9 L.E
Adapter	12V	25 L.E
Total Cost		45.5 L.E



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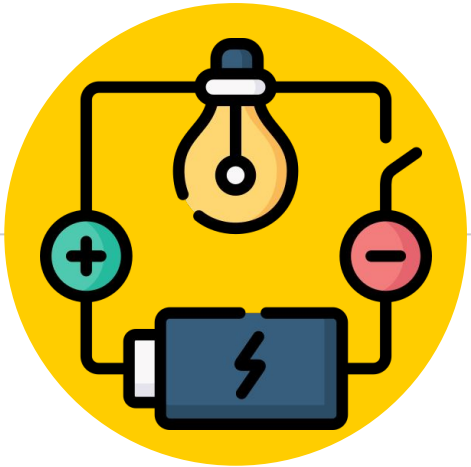
Circuit Operation

LED Light Intensity Controller Circuit Using MOSFET

Circuit Operation

- The most important component of this circuit is the IRF540 MOSFET, which acts as an amplifier so that there is enough current to drive the light source. The Micro Switches (Push Buttons) connected to the gate of the MOSFET act as a dimmer. A Light Emitting Diode (LED) emits light at an intensity that depends on the current passing through the LED, not the voltage. so By adjusting the current, we adjust the voltage being fed to the gate of the MOSFET. The voltage to the gate changes the load current so that the LED adjusts its level of brightness.



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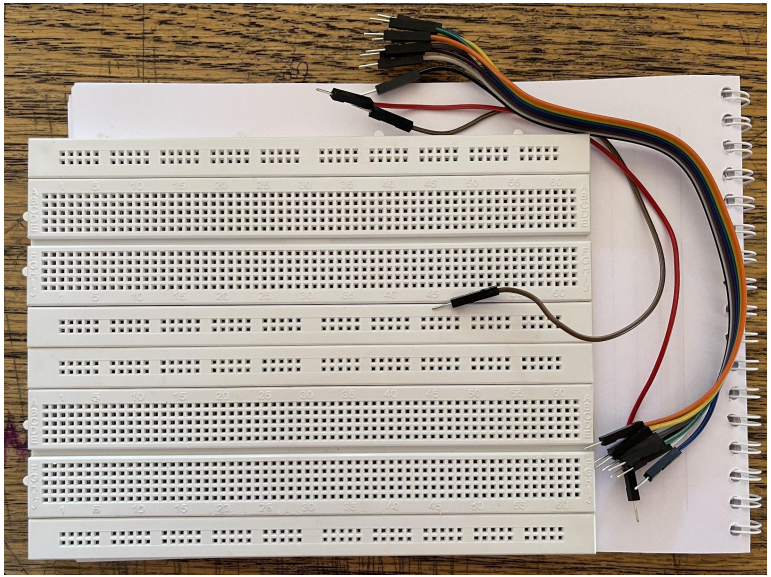
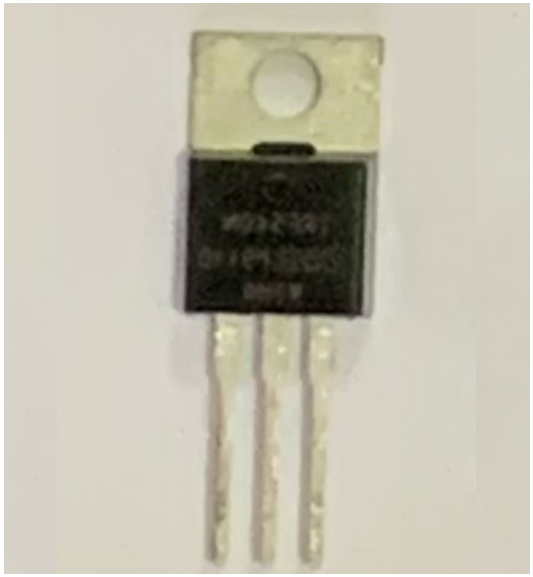
Circuit Process

LED Light Intensity Controller Circuit Using MOSFET

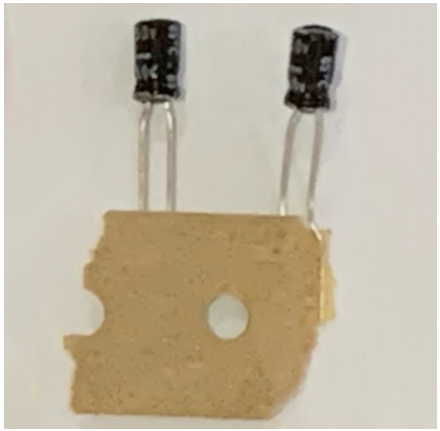
Hardware Components



Breadboard

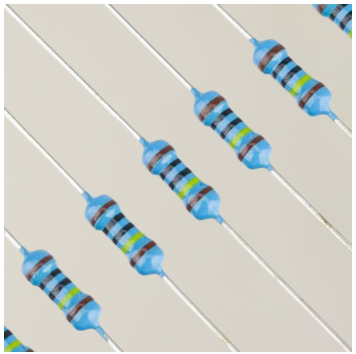


IRF540

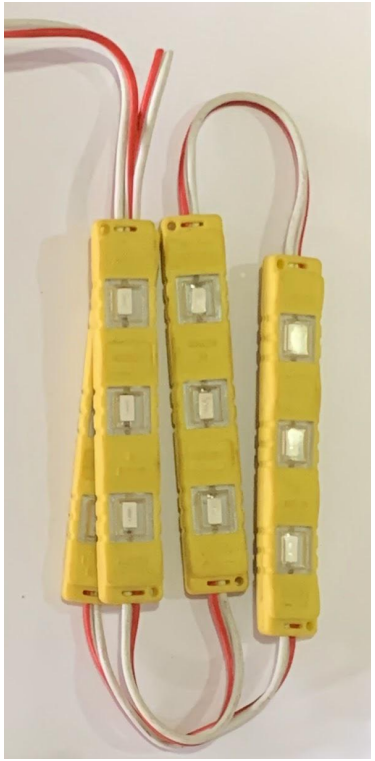


1 µF Capacitor

Push Buttons



1 MΩ

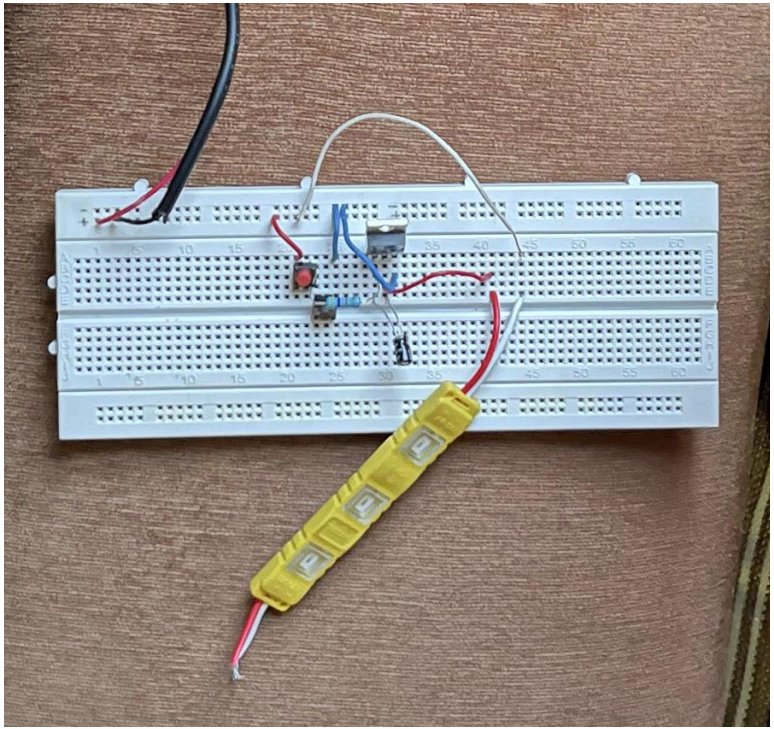


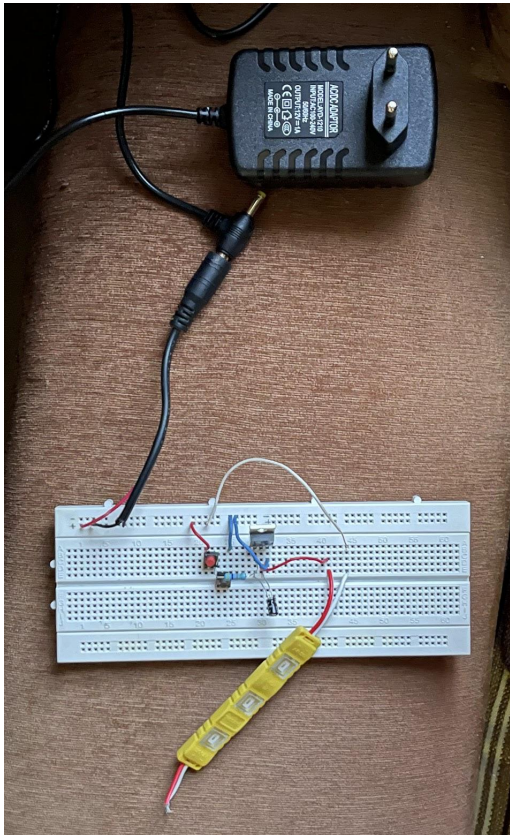
12V LED

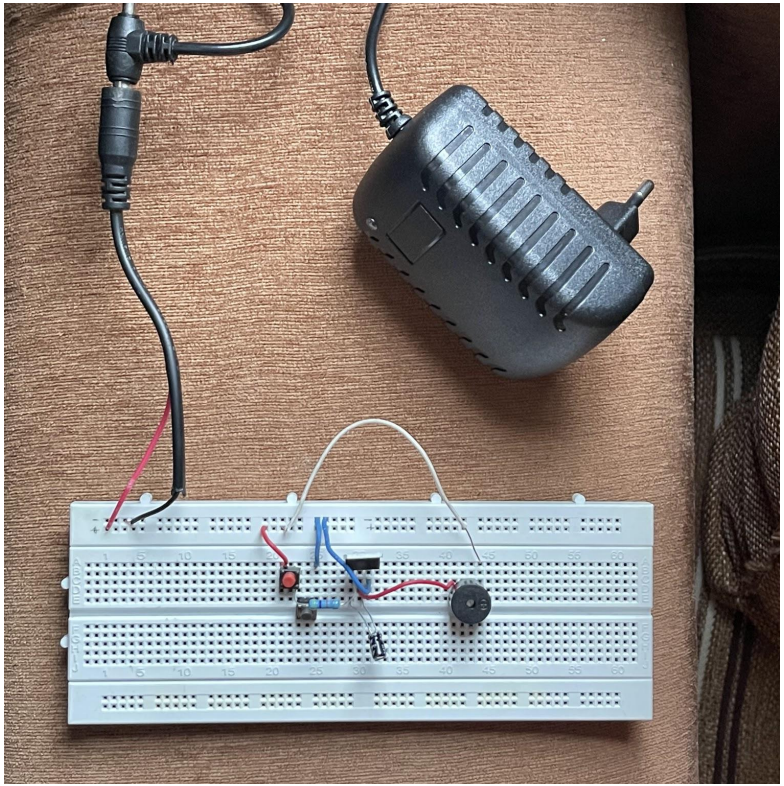
1

Breadboard

LED Light Intensity Controller Circuit Using MOSFET







2

PCB

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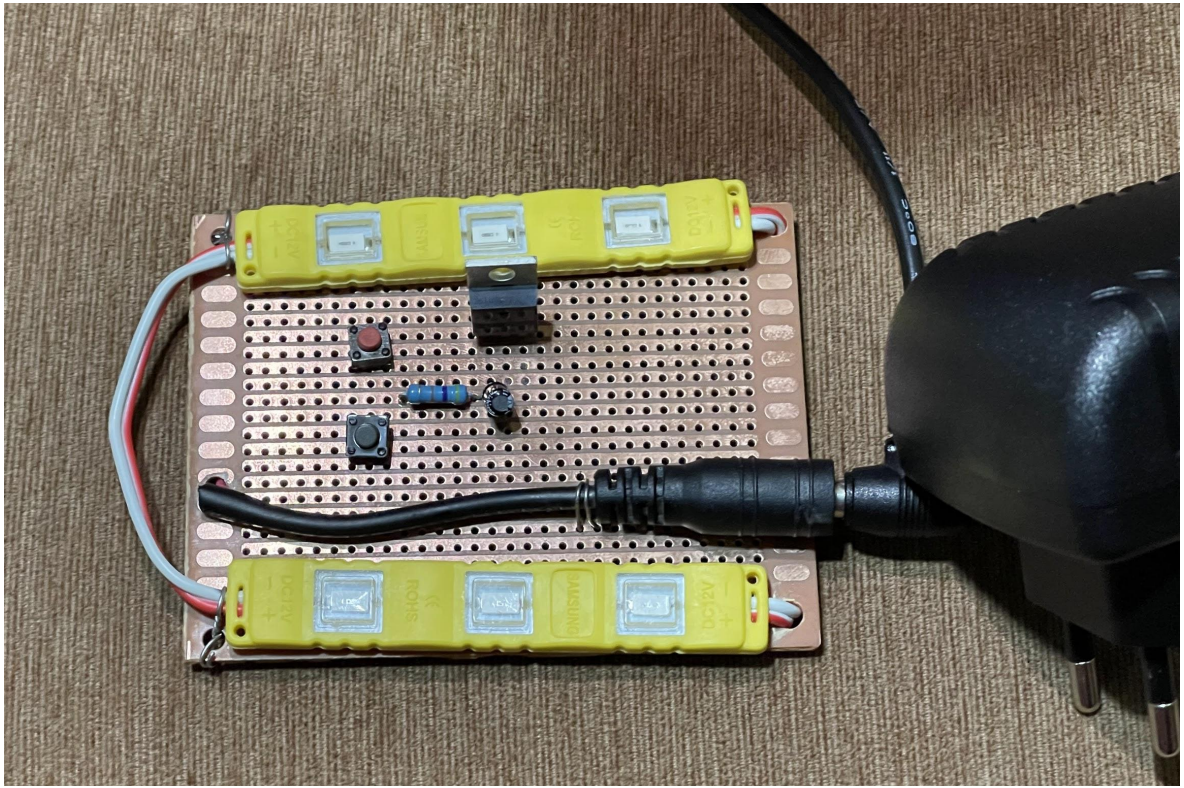
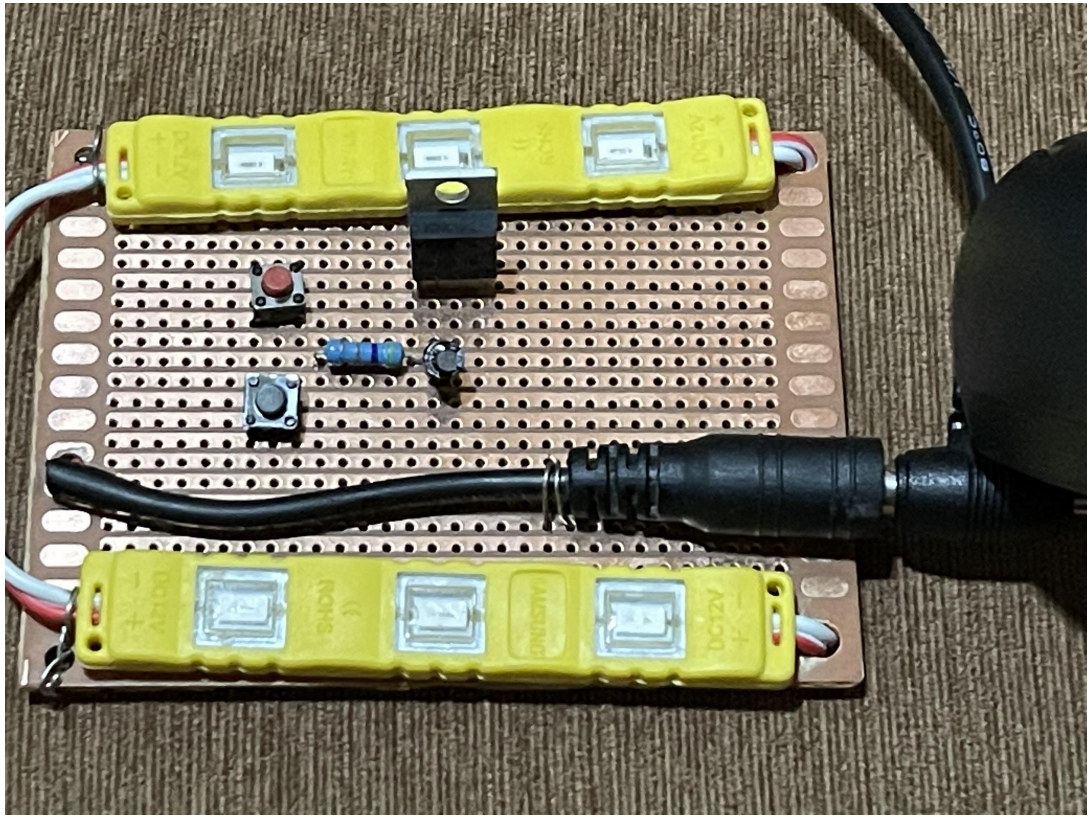
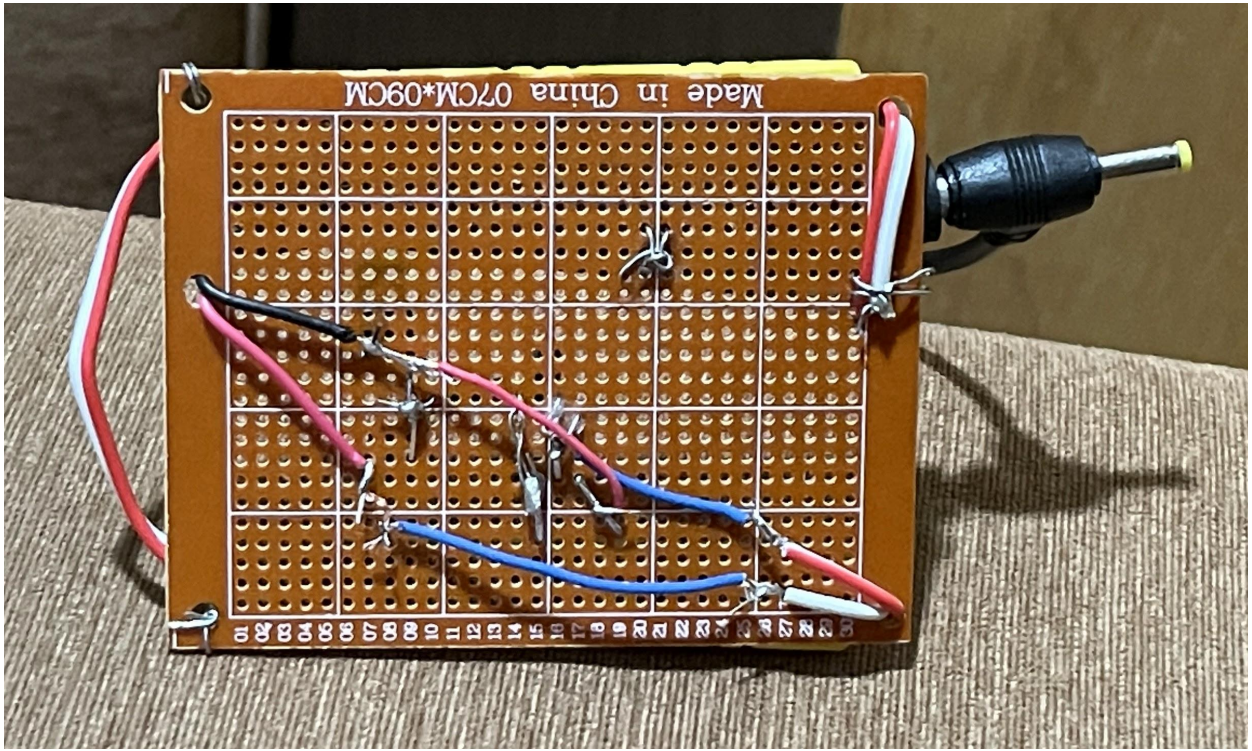



DC12V
RoHS
DC12V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Thanks!

Any questions ?