

LINEAR INTEGRATED CIRCUITS LAB

MINIPROJECT

Touch Free Timer Switch

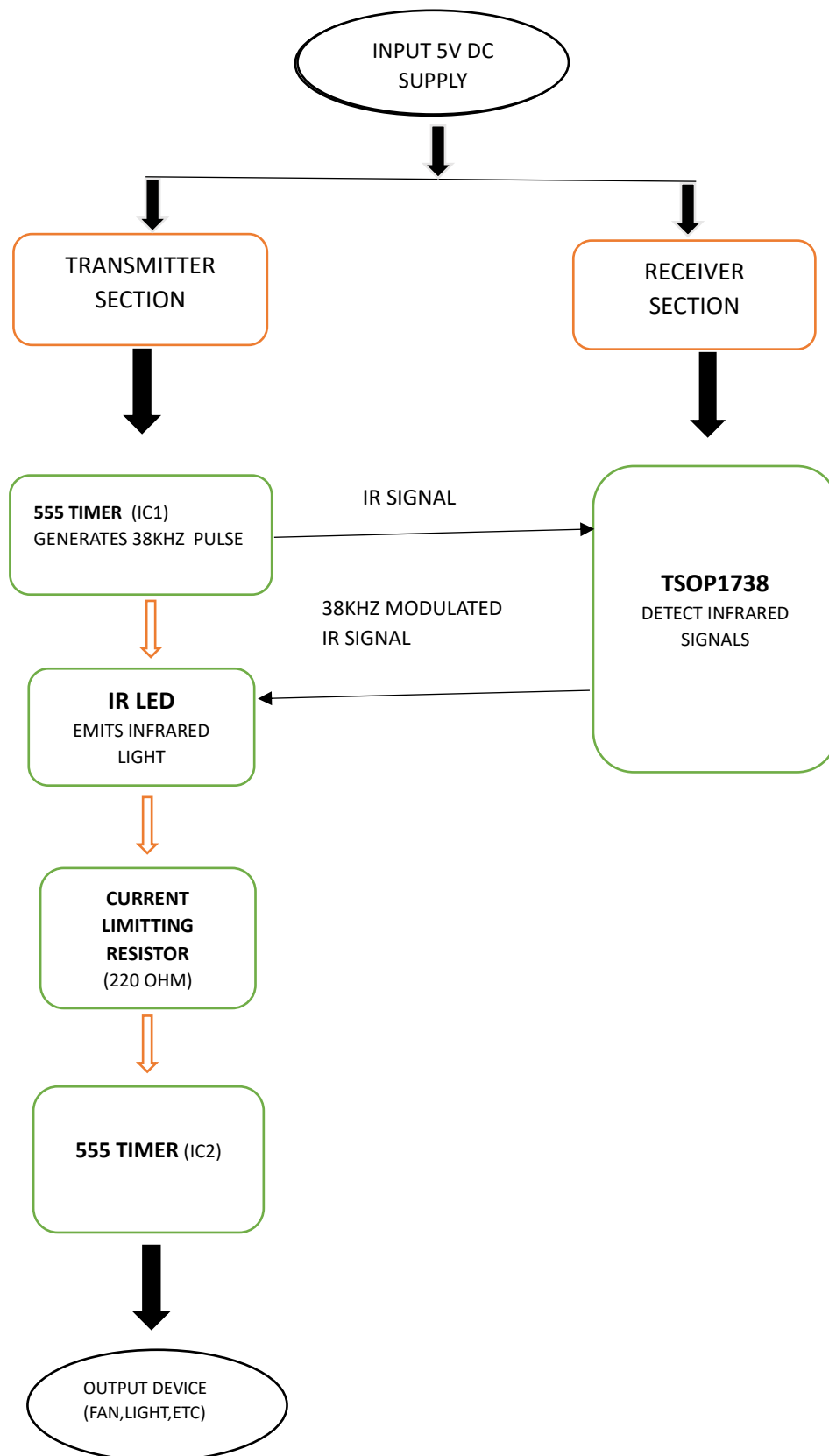
ABSTRACT

Touch Free Timer Switch is a type of infrared proximity circuit is widely used as an electric switch where physical contact is not desired for hygiene purpose. For example, we commonly see use of infrared proximity sensors on public drinking fountains and in public washrooms. The simple touch free timer switch circuit presented here can be operated by moving your hand in front of it. This is achieved by detecting the infrared light reflected by your hand onto a receiver device.

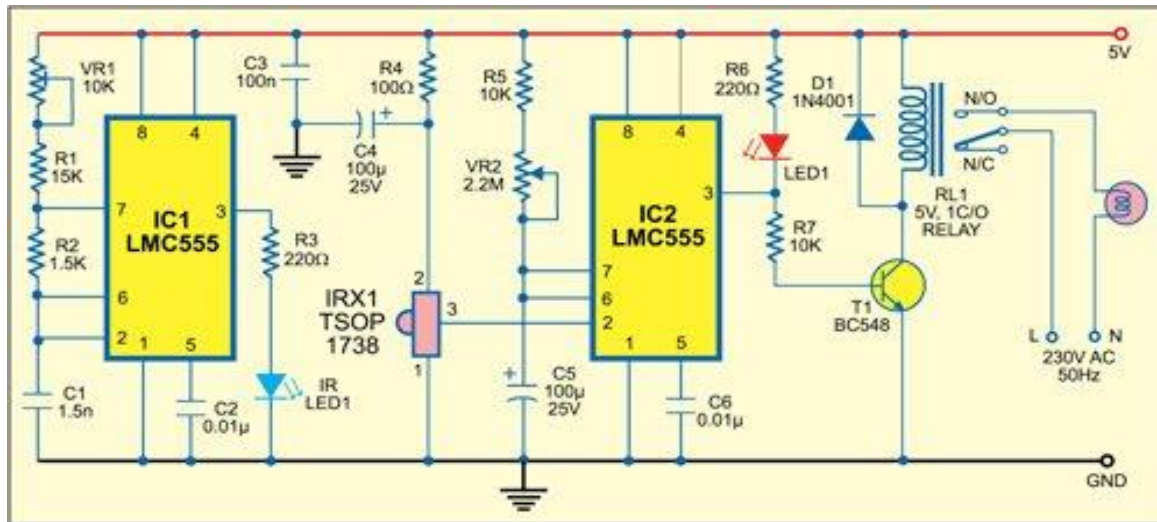
This circuit has two sections: transmitter and receiver. The IR transmitter is built around timer LMC555 (IC1), which is wired as an astable multivibrator. The multivibrator produces 38kHz pulses (at low duty cycle) that drive an infrared LED (LED1). This frequency can be tuned using a 10-kilo-ohm preset (VR1). A 220-ohm series resistor (R3) ensures that the current consumption of the IR transmitter is not out of arrangement. The receiver section is built around IR receiver module TSOP1738 (IRX1), timer LMC555 (IC2) and a few discrete components. The TSOP1738 is an integrated miniaturised receiver for infrared remote control systems. Everything required for IR signal processing, including the PIN diode and preamplifier, are assembled on a lead frame and the epoxy package is designed as an IR filter. This circuit works off regulated 5V DC.

BLOCK DIAGRAM:

TOUCHLESS TIMER SWITCH



CIRCUIT DIAGRAM:

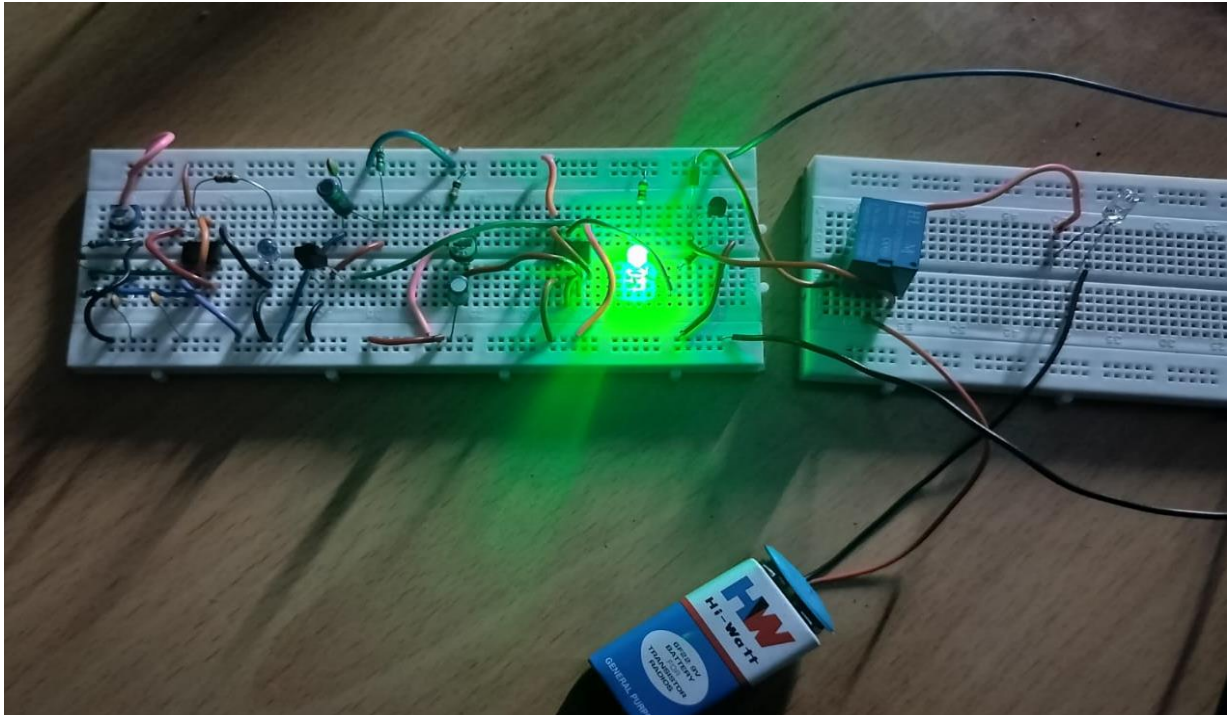


COMPONENTS REQUIRED:

S.NO.	COMPONENTS	RANGE	QUANTITY
1.	IC555	-	2
2.	Transistor	BC548	1
3.	IR receiver	TSOP 1738	1
4.	LED,IR LED	-	Each 1
5.	Diode	1N4001	1
6.	Relay	-	1
7.	Resistors	15k,1.5k,100,220, 10k Ohms	1,1,1,2,2
8.	Capacitors	1.5n,0.01u,100n,100u F	1,2,1,2
9.	POT	10k,2.2M Ohms	Each 1
10.	Lamp/Bulb	-	1
11.	DC Power supply	5V	1

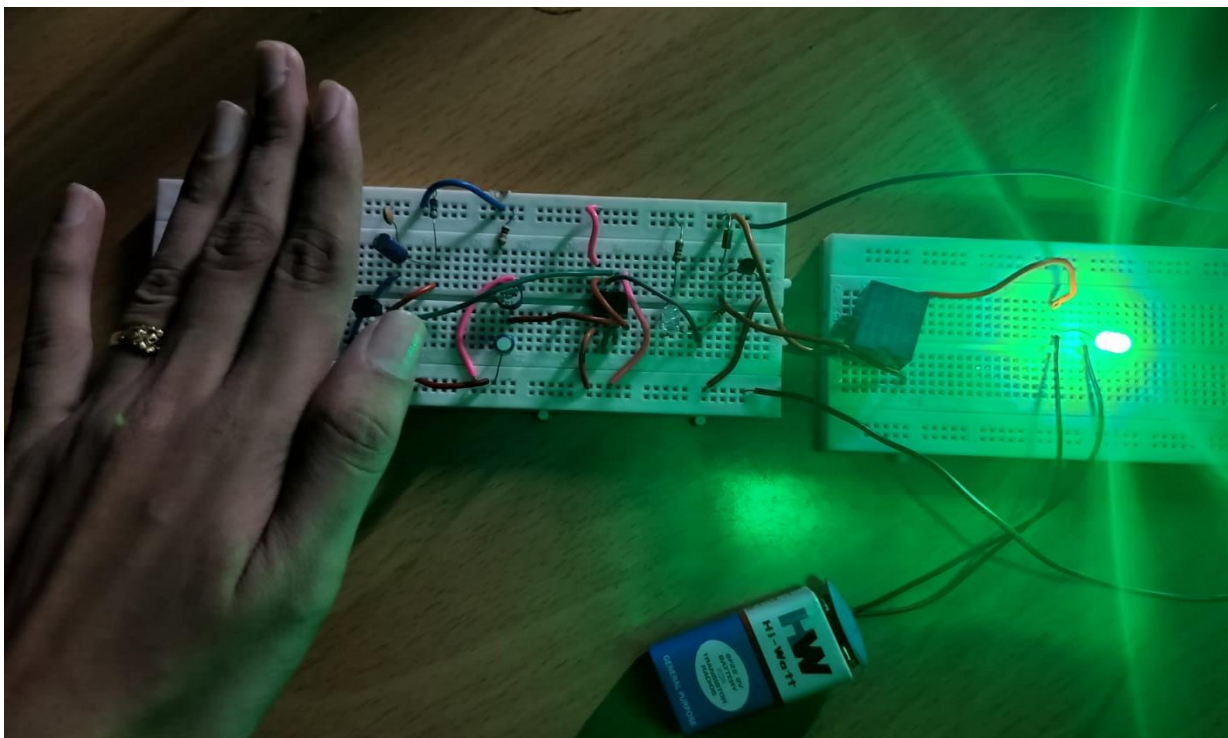
OUTPUT:

OFF STATE:

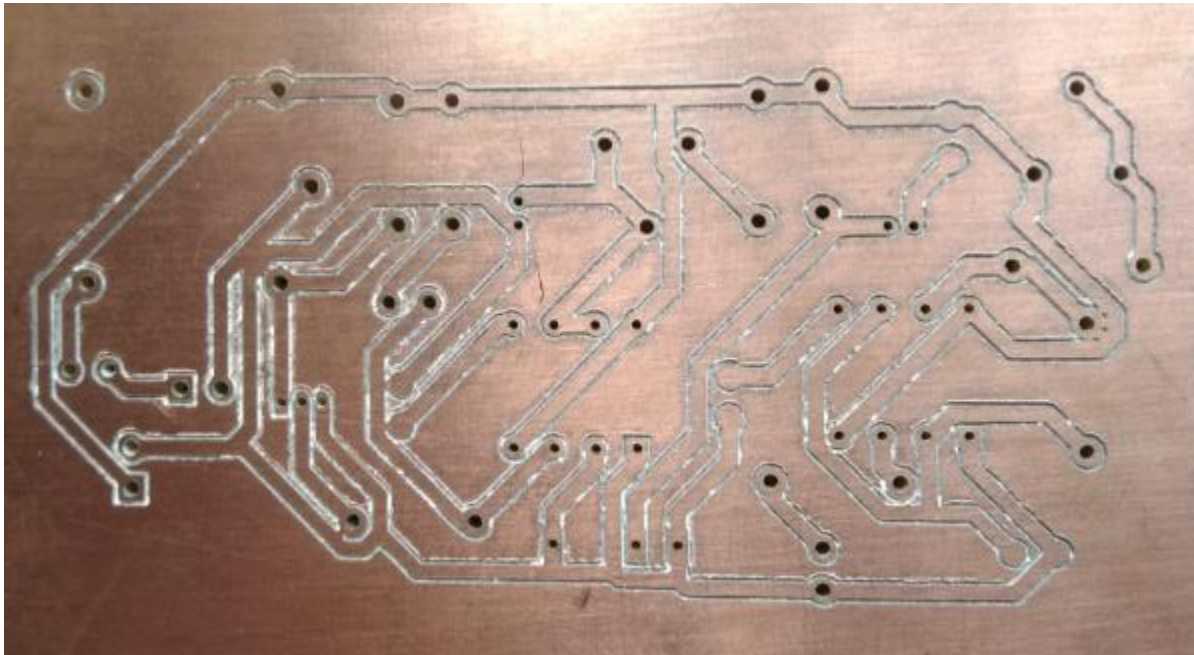


WAVE INFRONT OF SWITCH:

TIMER SET TO 10 seconds



PCB OUTPUT:



VIDEO DRIVE LINK:



<https://drive.google.com/file/d/1jsOwRLYvsCT-dITDjxcUB9tfQTlCesVr/view>