

# **Touch Alarm Using 555 Timer IC**



**A Project Submitted In The Partial Fulfilment Of  
Bachelor Of Engineering Present By**

**Darshil Mavadiya- 22BEC508**

**Anat Kothivar- 22BEC506**

**ITNU-NIRMA UNIVERSITY,AHMEDABAD**

# **TITLE: TOUCH ALARM USING 555 TIMER IC.**

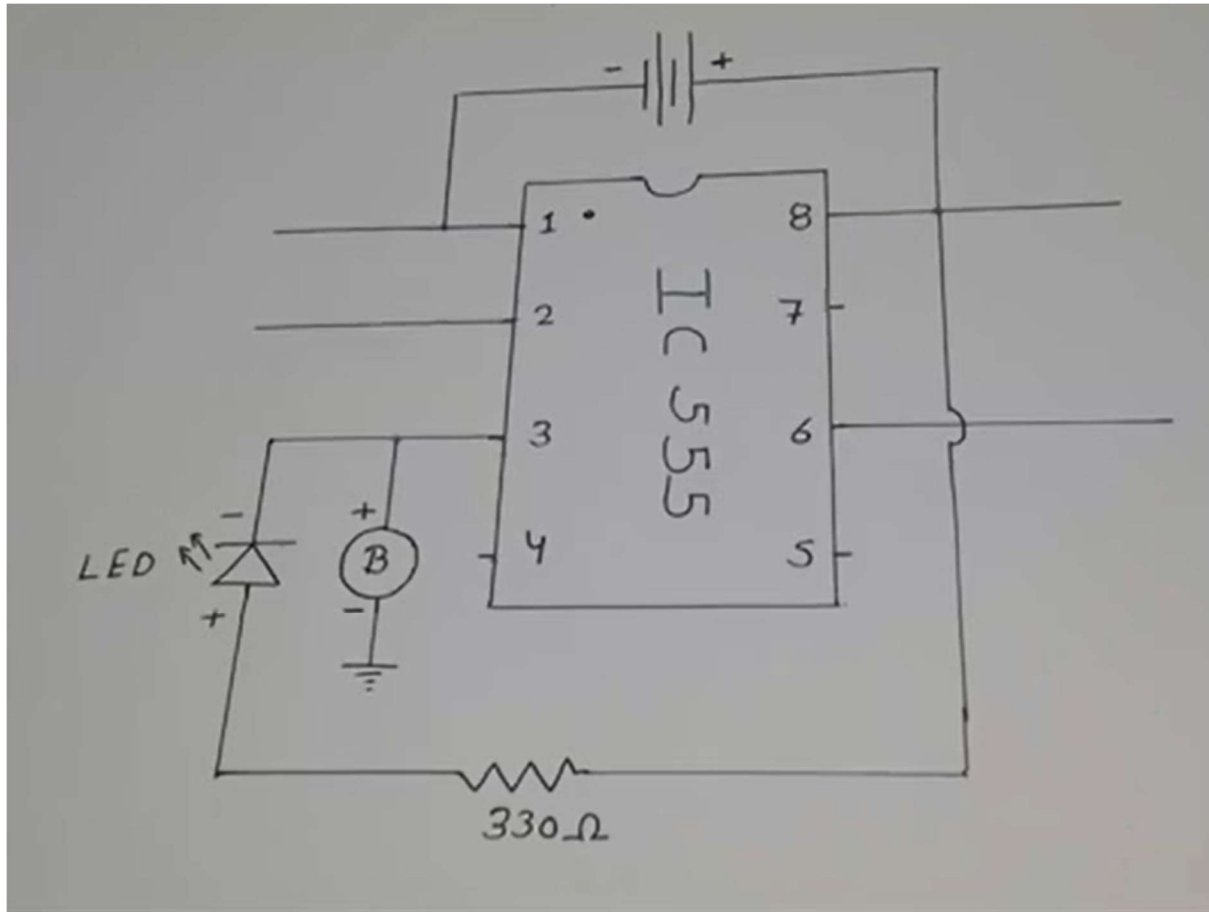
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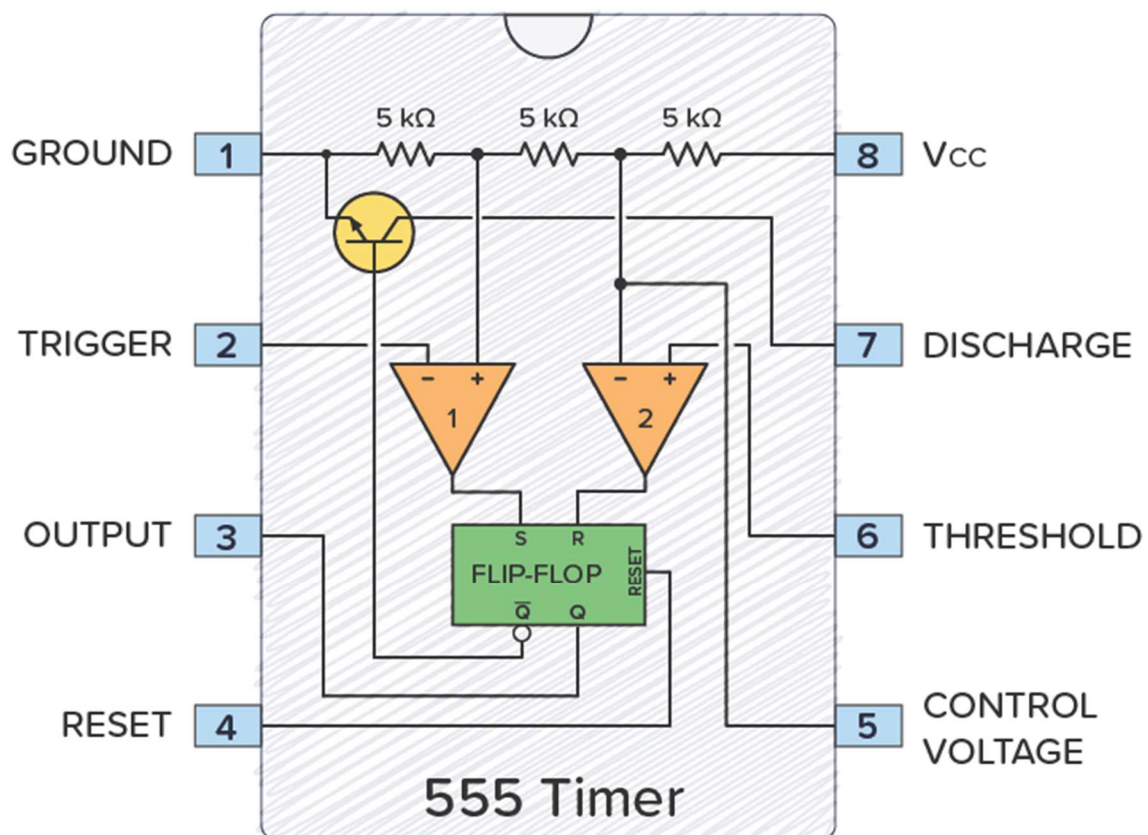
## **1)Component:**

- IC 555 TIMER
- RESISTOR 330 Ohm
- LED
- BUZZER 3 V-27 V
- BATTERY
- Jumper Wire

## 2)Circuit Diagram:



### 3)555 TIMER IC:



- Pin1 (GROUND): Connects to the 0v power supply.
- Pin2 (TRIGGER): Pin-2 is a trigger pin which is used to convert the FF from set to RST (reset). The output of the timer depends on the amplitude of the external trigger pulse that is applied to the trigger pin.
- Pin3 (OUTPUT): Pin-3 is an output pin.
- Pin4 (RESET): Pin-4 is a RST pin. When the negative pulse is applied to this pin to disable or reset, and false triggering can be neglected by connecting to VCC.

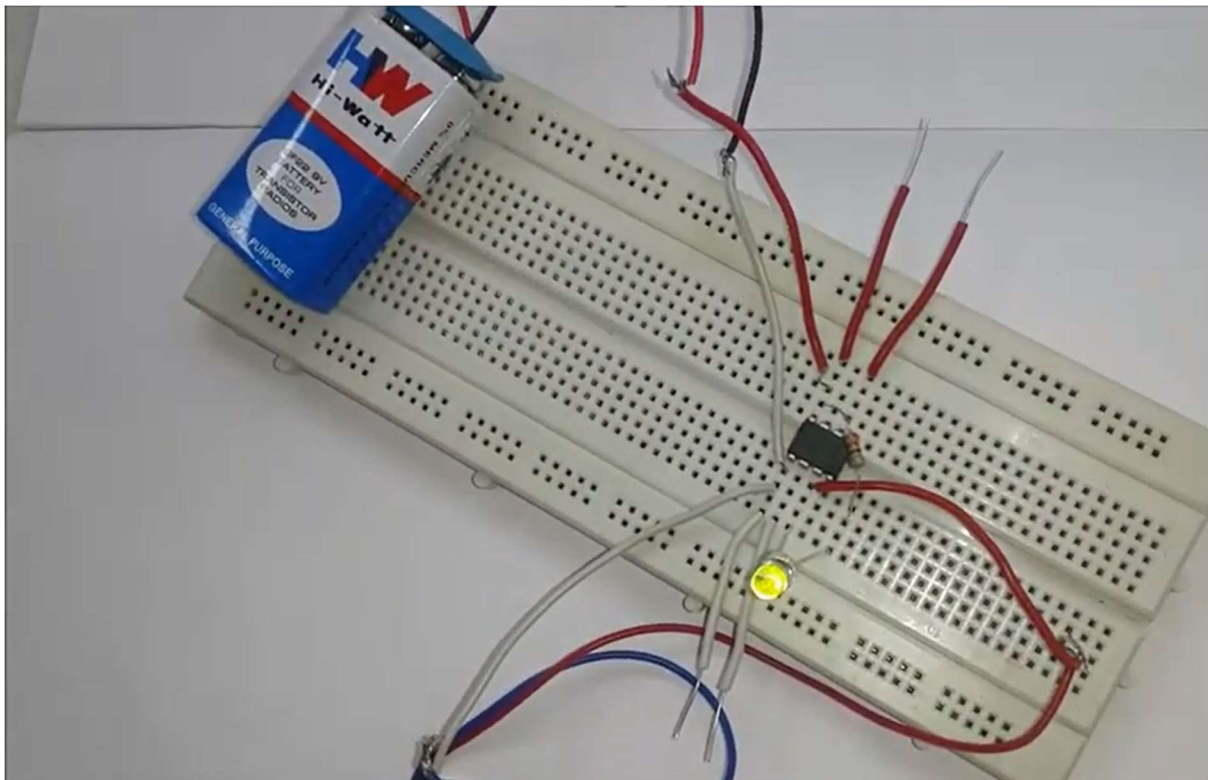
- Pin5 (CONTROL VOLTAGE ): Pin-5 is the control voltage pin used to control the pulse width of the output waveform and also the levels of threshold and trigger. When an external voltage is applied to this pin, then the output waveform will be modulated.
- Pin6 (THRESHOLD): Pin-6 is the threshold pin, when the voltage is applied to threshold pin, then it contrasts with a reference voltage. The set state of the FF can be depends on the amplitude of this pin.
- Pin7 (DISCHARGE): Pin-7 is the discharge pin, when the output of the open collector discharges a capacitor between the intervals, then it toggles the output from high to low.
- Pin8 (VCC): Pin-8 is the voltage supply pin which is used to supply the voltage to the IC with respect to the ground terminal.

## 4)Working of Touch Alarm Using 555 Timer IC

- In this circuit, we need the output (buzzer/alarm) to be OFF by default. In other words, whenever we power on the circuit or press the reset button, the buzzer shouldn't be turned ON. So we connected Pin-6 to positive rail, so that it always sees a voltage more than  $2/3$  of supply voltage and keeps the output in OFF state.
- For detecting the touch of our skin/finger, we used a conducting wire (labelled as Touch Probe in the circuit diagram). We connected it to Pin-2 of the 555 timer IC so that whenever our skin comes in contact with the touch probe, it acts as a ground (-ve voltage) causing Pin-2 to detect a voltage less than  $1/3$  of supply voltage. Because of this Pin-2 turns ON the output.
- Immediately after the skin gets out of contact with the touch probe, pin-2 senses nothing and so the output turns OFF. In order to keep the output latched, even after the finger is removed from the touch probe, Pin-2 must sense less than  $1/3$  of supply voltage. In order to do that, we used a transistor to invert the output signal and pass it to Pin-2.
- So now immediately after Pin-2 senses a contact with the touch probe, it turns ON the output momentarily. This activates the transistor and it in turn applies 0V at Pin-2, thus keeping the output continuously in ON state

- To reset the circuit i.e. to turn OFF the alarm/buzzer, we need to apply a +ve voltage at Pin-2. And pressing the momentary push button switch exactly does that.

## 5)Breadboard Diagram:



## **6)Conclusion:**