Touch switch

This project demonstrates the principle and operation of application based on touch sensor. The circuit is divided into three parts: Input, 555 timer and output. A touch plate is used for the input and output can be seen across an LED or a buzzer. Some application of the circuit include touch based blinking lights, touch buzzer, touch switch etc.

DESCRIPTION:

The touch plates in this project are connected to the trigger pin of the 555 timer IC. When we touch the touch plates the output of the touch plates becomes zero thereby providing an active low trigger to the IC 555. The IC is configured in the monostable mode .The output of the IC is a pulse whose frequency is set by the resistor (R1) and capacitor (C1) according to the formula [F=1/(1.1\*R\*C)]. In this case it produces a pulse with frequency of about 0.9 hertz and time period of 1.1 seconds. In monostable mode pin7 (discharge pin) and pin6 (threshold pin) are shorted while R1 is connected between pin7 and Vcc and C1 is connected between pin 6 and ground. Reset pin (pin4) is connected to Vcc while control pin is connected to ground through a capacitor. The output can be observed on the LED, which glows for a small duration. This circuit can be used in the following applications:

To detect stray voltages produced by mains or to detect electrostatics build up in a room.

To make touch buzzers.

To implement touch switches like for a bell.

circuit 2, shows an improved version of this circuit. This circuit has a higher sensitivity as compared to circuit in figure 1. The output of the touch plate is connected to the base of npn transistor T1 (BC 547). The collector is connected to the Vcc through a resistor R1. The trigger pin of the IC is connected to the collector of the transistor. When no input is there on the base of the T1, T1 is in cut off state and hence the trigger pin is at logic high and therefore 555 do not produce any output. When we touch the plates T1 behaves like a closed switch trigger pin gets connected to ground, thereby producing the output at pin 3 of the IC.

BLOCK DIAGRAM:



