IR BURGLAR DETERRENT

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Thwart any burglary attempt using this infrared proximity detector that triggers an alarm when the rays falling on its sensor are interrupted.

The circuit of IR burglar deterrent (shown in Fig. 1) comprises transmitter and receiver-cum-alarm sections. It works off 6V DC, 500mA uninterrupted supply and uses low-cost readily-available electronic components. LED2 is used for indicating power-'on.'

The transmitter section is built around timer 555 (IC1), while the receiver-cum-alarm section consists of IR sensor TSOP1738, dual precision monostable multivibrator CD4538 and three-siren sound generator IC UM3561. Pin configurations of UM3561 and TSOP1738 are shown in Fig. 2.

The astable multivibrator (IC1) oscillates at a frequency of around 38 kHz, which is transmitted by the infrared LED (IR LED1). Resistor R2 limits the current across the IR LED.

The transmitted IR signal directly falls on IR sensor TSOP1738. Whenever the IR signal is interrupted, its output pin 3 goes low and IC2 is triggered at pin 5 through transistor T2. As a result, its output at pin 7 goes low (for a preset time) to forward bias siren-driver transistor T2. This condition is indicated by the glowing of LED1. The time-out period can be increased or decreased by changing the value of capacitor C6.

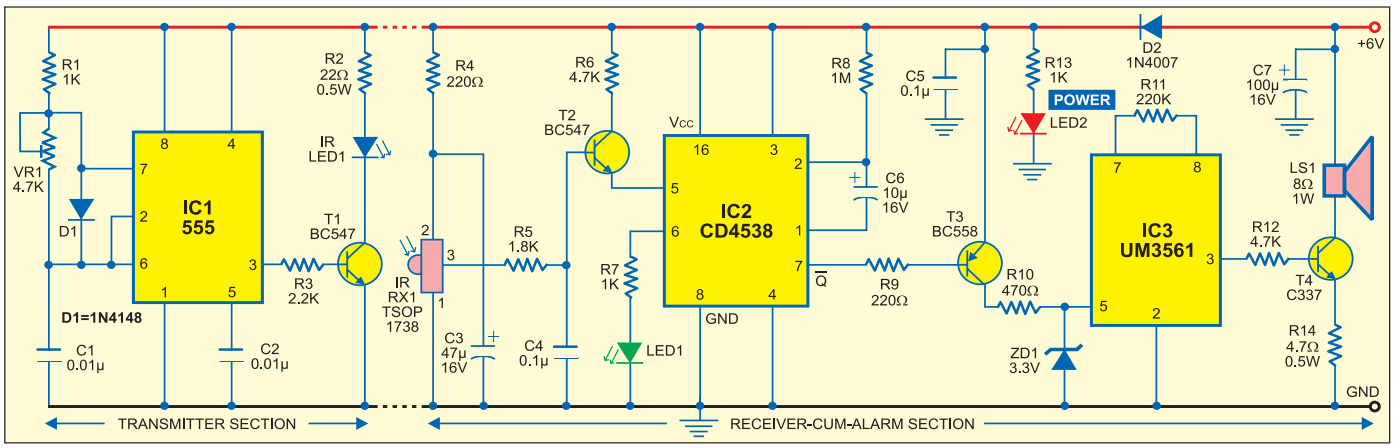

Fig. 1: Circuit for IR burglar deterrent

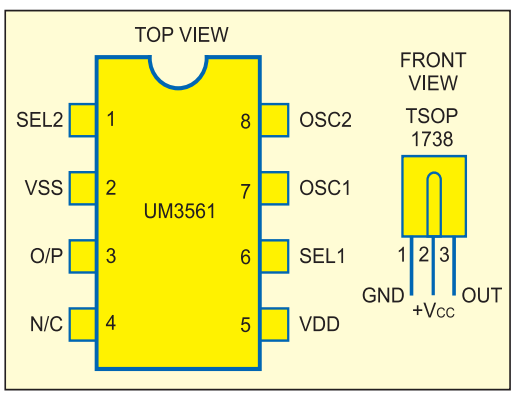

Fig. 2: Pin configurations of UM3561 and TSOP1738

Now siren-sound generator IC3 is activated and its output signal is amplified by transistor T4 to produce a sound resembling that of police siren. Resistor R14 limits the loudspeaker current.

The output tone of siren-sound generator IC3 can be set by connecting its pin 6 to either Vcc or GND. When you connect pin 6 to Vcc IC3 produces the sound of fire-alarm siren, but when you connect it to GND it produces the sound of ambulance siren.

Assemble the transmitter and receiver-cum-alarm circuits on two separate general-purpose PCBs and house in suitable cabinets. Mount the units on the opposite sides of the entrance gate such that IR rays from IR LED1 fall directly on the IR receiver module (TSOP1738). ●