INFRARED BUG

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EFY TESTED

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This circuit can be used to de-tect the presence of modulated infrared signals in its vicinity from any electronic source, for in-stance, an IR handheld remote control-ler. It can also be used for testing IR burglar alarm systems.

Fig. 1 shows the circuit of the in-frared bug. Besides the power supply (one 9V PP3/6F22 compact battery pack), it consists of an infrared signal detector-cum-preamplifier followed by a melody generator and a tiny audio amplifier. The cir-cuit, in principle, con-verts the IR signal pulse trains into noticeable au-ral notes.

S1 is used to switch on/off mains power and LED1 indicates power-'on.' Resistor R4 and zener diode ZD2 form a low-current voltage stabiliser for providing steady 5.1V DC to the small signal-preamplifier circuit. IR LED1 is the main sensing element.

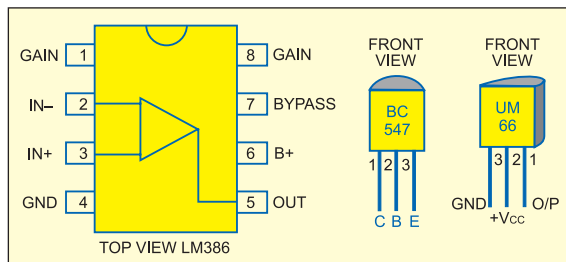The IR signal detected by IR LED1 is amplified by npn transistors T1 and

Fig. 2: Pin configurations of LM386, BC547/337 and UM66

T2. The amplified signal is fed to the melody generator via resistor R5. The output of the melody generator is fed to LM386 low-power audio amplifier (IC2) via variable resistor VR1, which works as the volume control. The loudspeaker sounds to in-dicate the presence of IR signal near the circuit.

IC LM386 is wired as a minimum-parts amplifier with a voltage gain of '20,' which is sufficient for this application. Capacitor C3 is used for decoupling of the positive rail and the R-C combination net-work comprising C4 and R7 bypasses high frequency to ground.

The circuit can be easily wired on a small veroboard or any general-purpose PCB. Pin configurations of IC LM386, transistor BC547 and melody generator UM66 are shown in Fig. 2. A miniature metallic cabinet may be used for enclos-ing the gadget. ●
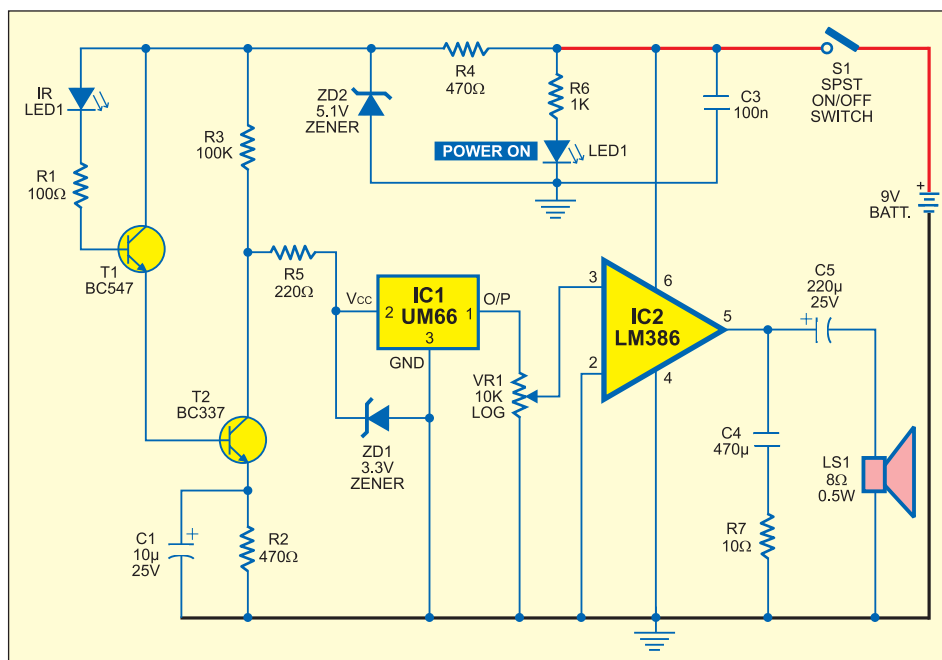
Fig. 1: Infrared bug