

## Experiment 19-

### Audible Infrared Remote Control Receiver

In this experiment you will build a remote control receiver that emits sound, when hit by an IR signal from a remote control transmitter.

The circuit of this experiment is shown in Figure 1. Resistor R1 supplies the infrared receiver module (IRM) with positive voltage. Notice that one pin of the IRM is also connected to negative. Diode D1, connected to the output of the IRM, rectifies the signal produced by the IRM and sends a negative voltage to the base of transistor Q1. Q1 conducts when a negative voltage or pulse is applied to its base, causing the speaker SPK to emit a sound. Therefore, every time infrared light

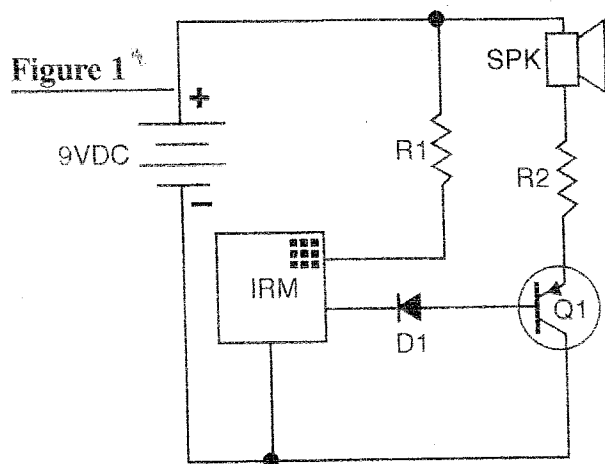
strikes the IRM, the speaker will emit a sound. You can test this receiver with any IR remote control transmitter of your TV, DVD player, etc., or with the remote control transmitter built on experiment 18.

#### Procedure:

- Build the circuit shown in figures 1 and 2. Be sure to install the transistor in the correct direction. When done verify that the circuit has been properly assembled, and connect a fresh 9V battery to the snap.

- Test the circuit by aiming a TV or DVD remote control transmitter, or the transmitter of experiment 18, at the IRM. Press any button on the remote, and as you do this, the speaker will emit sound. Find out the maximum distance of activation between the transmitter and the receiver.

After completing this experiment remove the components of both breadboards.



#### Parts List:

**R1:** 100Ω Resistor (Brown, Black, Brown)  
**R2:** 10Ω Resistor (Brown, Black, Black)  
**D1:** 1N4148 Diode (tiny silicon diode)  
**IRM:** Infrared Receiver Module  
**Q1:** PNP Transistor 2N3906  
**SPK:** Speaker  
**Misc.:** Battery snap, breadboard, wires, and transmitter assembled in experiment 18.

