TELEPHONE CALL RECORDER

■ ALIZISHAAN KHATRI

Today telephone has become an integral part of our lives. It is the most widely used communication device in the world. Owing to its immense popularity and widespread use, there arises a need for call recording devices, which find application in call centres, stock broking firms, police, offices, homes, etc.

Here we are describing a call recorder that uses very few components. But in order to understand its working, one must first have the basic knowledge of standard telephone wiring and a stereo plug.

In India, landline telephones primarily use RJ11 wiring, which has two wires—tip and ring. While tip is the positive wire, ring is the negative one. And together they complete the telephone circuit. In a telephone line, voltage between tip and ring is around 48V DC when handset is on the cradle (idle line). In order to ring the phone for an incoming call, a 20Hz AC current of around 90V is superimposed over the DC voltage already present in the idle line.

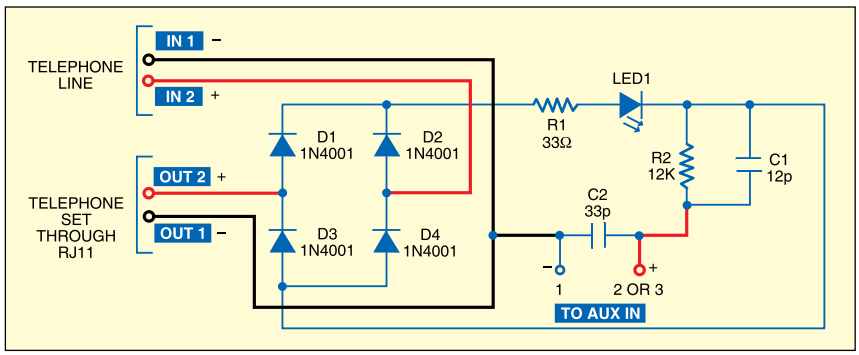

Fig. 1: Call recorder circuit

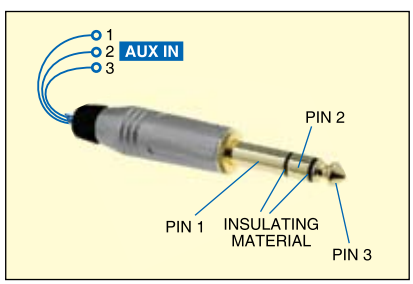

Fig. 2: Pin configuration of stereo jack

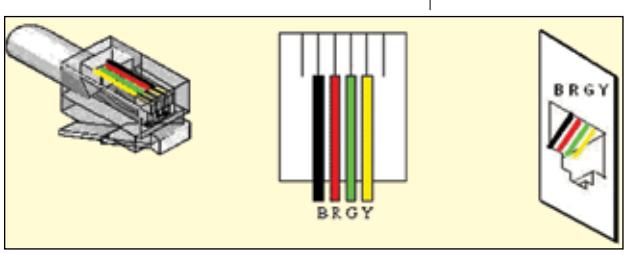

Fig. 3: RJ connector

The negative wire from the phone line goes to IN1, while the positive wire goes to IN2. Further, the negative wire from OUT1 and the positive wire from OUT2 are connected to the phone. All the resistors used are 0.25W carbon film resistors and all the capacitors used are rated for 250V or more. The negative terminal of 'To AUX IN' is connected to pin 1 of the stereo jack while the positive terminal is connected to pins 2 and 3 of the stereo jack. This stereo jack, in turn, is connected to the AUX IN of any recording device, such as computer, audio cassette player, CD player, DVD player, etc. Here we shall be connecting it to a computer.

When a call comes in, around 90V AC current at 20Hz is superimposed over the DC voltage already present in the idle line. This current is converted into DC by the diodes and fed to resistor R1, which reduces its magnitude and feeds it to LED1. The current is further reduced in magnitude by the resistor R2 and fed to the right and left channels of the stereo jack, which are connected to the AUX IN port of a computer.

Any audio recording software, such as AVS audio recorder (available at: http://www.avs4you.com/AVS-Audio-Recorder.aspx), Audacity audio recorder (http://audacity.sourceforge.net/), or audio recorder (http://www.audio-tool.net/audio_recorder_for_free.html), can be used to record the call. When a call comes in, one needs to launch the audio recording software and start recording.

For phone recording, simply connect the stereo jack to the AUX IN port of the PC. Install the Audacity audio recorder (different versions are available for free for different operating systems at http://audacity.sourceforge.net/) on your PC. Run the executable Audacity file. In the main window, you will find a drop-down box in the top right corner. From this box, select the AUX option. Now you are ready to record any call. As soon as a call comes in, press the record button found in the Audacity main window and then pick up the telephone receiver and answer the call. Press the stop button once the call ends. Now go to the file menu and select the 'Export as WAV' option and save the file in a desired location.

You may change the value of resis-

tor R2 if you want to change the output volume. You can use a variable resistor in series with R2 to vary the volume of the output. The recorded audio clip can be edited using different options in the Audacity software.

You can assemble the circuit on a general-purpose PCB and enclose it in a small cabinet. Use an RJ11 connector and stereo jack for connecting the telephone set and computer (for call recording). Telephone cords can be used to connect to the phone line and the circuit. Use of a shielded cable is recommended to reduce disturbances in the recording. These can also be reduced by increasing the value of R2 to about 15 kilo-ohms.

EFY note. Audacity recording software is included in this month's EFY-CD under 'Utilities' section. ●