

## Home Appliances.



## Playback Systems:

There are several types of voice recorders and playback systems available in the market but most of them are expensive and their circuits are also very complex to assemble. Here is a simple voice recorder and playback system for recording and playback of voice messages.

## Circuit and working:

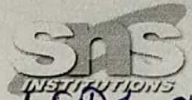
The circuit is built around playback IC APR3901-V2 (IC1), voltage regulator 7806 (IC2), npn transistor BC547 (T1), 8-ohm, 0.5W speaker (CS1), electret microphone (MIC1) and a few other components.

IC APR3901-V2 is a high quality voice recording and playback IC. The length of message recording depends on the value of external resistor R1 connected to its pin 7. The operation modes are described below.

Test point	Details
TPD	0V, GND
TP1	+6V
LED1	Glows when S1 pressed.



## Recording mode:



When switch  $S_1$  is pressed, LED1 glows to indicate that recording has started. Now you can speak close to microphone MIC1 in order to record your message. You may have to vary VR1 to adjust for different microphones. IC1 remains in recording mode as long as switch  $S_1$  is pressed and pin 27 of IC1 is grounded. Recording stops after 20 seconds (selected by 52-kilo-ohm resistance in this case), pin 25 of IC1 becomes 'high' and LED1 stops glowing.

The recording time duration can be increased or decreased depending on the value of resistor  $R_1$  as follows:

1. 38 kilo-ohms for 16 seconds
2. 52 kilo-ohms for 20 seconds
3. 67 kilo-ohms for 24 seconds
4. 75 kilo-ohms for 30 seconds



## Playback mode:

When switch  $S_2$  is pressed momentarily the recorded message plays from the start and can be heard from speaker LS1.

## Standby mode:

Pin 6 of IC1 is kept 'low' so that it returns to standby mode after the completion of recording and playback. If pin 6 is high, it will be in power-down mode and no recording or playback is allowed and current consumption is typically less than  $1\mu A$ .

Working of the circuit is simple. You can record your message for the duration defined by resistor  $R_1$  by keeping switch  $S_1$  pressed. Once recorded, the message can be played simply by pressing switch  $S_2$  momentarily.



## Construction and testing:



An actual-size, single-side PCB for the voice recorder and playback system is shown and its component layout. Suitable connectors are provided on the PCB for connecting the microphone and speaker. Assemble the circuit on the provided PCB to minimise assembly errors. Carefully assemble the components and double-check for any overlooked error.

The circuit is simple and doesn't need many test points to verify. Check the correct power supply at TP1 with respect to TP0. Press switch S1. If LED1 glows, it implies IC1 is working well. The circuit is very useful for recording and playing it back to repeatedly hear what was recorded previously.