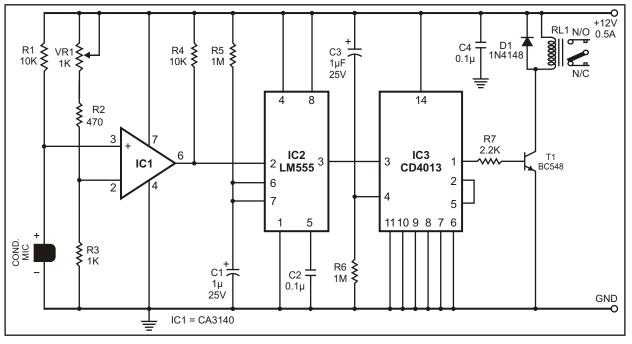
IMPROVED CLAP SWITCH



T.K. Hareendran



Described here is an interesting circuit of a clap operated toggle switch, realized using readily available inexpensive components. The whole circuit may be easily assembled on a medium size veroboard. For powering the gadget, an ac adaptor with an output of 12V dc (500mA) is sufficient. For safe construction and easy trouble shooting, use of IC sockets are recommended.

Working of the circuit is simple, straight forword and self explanatory to some extent.

When power is applied to the circuit, the CMOS IC3(consists of two independent flip-flops) is immediately re setted by the power on reset (P.O.R) components C3 and R6. Now the relay is in idle state and the load (not indicated) connected through the relay contacts is in off state.

In the absence of a clap, the voltage at the input pin 3 of IC 1 is almost equal to the positive rail voltage and hence the output of IC1(at pin 6) remains high. Now output of the monostable IC 2 is in low state.

In case of a valid clap (sensitivity set by preset pot VR1), voltage at pin 3 of IC1 falls to make the output at pin6 low. Now IC2 gets triggered and IC3 is clocked by the monostable output. Consequently IC3 output (pin 1) goes high to forward bias the relay driver transistor T1 (via base bias resistor R7) and the relay is energized.

At the time of a second clap, again IC3 is clocked as mentioned earlier. Note

that the flip-flop is wired in toggle mode with data input (Pin5) connected to \overline{Q} output (Pin 2). On receipt of this second clock pulse, the relay is switched off by IC3.

For compactness, one PCB mounting relay is used in the circuit. Part numbers of this 12V DC-285 -Single contact relay (from O/E/N) is 58-12-IC. Operating current of this relay is only around 42 mA and thus a low power transistor BC548(T1) is enough for the relay driver.

Finally, note that the CMOS IC (IC3) consists of two independent D-type Flip-Flops. Here only one is used for our circuit.