

# SIMPLE ELECTRONIC CODE LOCK

The circuit diagram of a simple electronic code lock is shown in figure. A 9-digit code number is used to operate the code lock.

When power supply to the circuit is turned on, a positive pulse is applied to the RESET pin (pin 15) through capacitor C1. Thus, the first output terminal Q1 (pin 3) of the decade counter IC (CD 4017) will be high and all other outputs (Q2 to Q10) will be low. To shift the high state from Q1 to Q2, a positive pulse must be applied at the clock input terminal (pin 14) of IC1. This is possible only by pressing the push-to-on switch S1 momentarily. On pressing switch S1, the high state shifts from Q1 to Q2.

Now, to change the high state from Q2 to Q3, apply another positive pulse at pin 14, which is possible only by pressing switch S2. Similarly, the high state can be shifted up to the tenth output (Q10) by pressing the switches S1 through S9 sequentially in that order. When Q10 (pin 11) is high, transistor T1 conducts and energises relay RL1. The relay can be used to switch 'on' power to any electrical appliance.

Diodes D1 through D9 are provided to prevent damage/malfunctioning of the IC when two switches corresponding to 'high' and 'low' output terminals are pressed simultaneously. Capacitor C2 and resistor R3 are provided to prevent noise during switching action.

Switch S10 is used to reset the circuit manually. Switches S1 to S10

can be mounted on a keyboard panel, and any number or letter can be used to mark them. Switch S10 is also placed together with other switches so that any stranger trying to operate the lock frequently presses the switch S10, thereby resetting the circuit many times. Thus, he is never able to turn the relay 'on'. If necessary, two or three switches can

be connected in parallel with S10 and placed on the keyboard panel for more safety.

A 12V power supply is used for the circuit. The circuit is very simple and can be easily assembled on a general-purpose PCB. The code number can be easily changed by changing the connections to switches (S1 to S9).

