

# ANTI-THEFT SECURITY FOR CAR AUDIOS

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This small circuit, based on popular CMOS NAND chip CD4093, can be effectively used for protecting your expensive car audio system against theft.

When 12V DC from the car battery is

Whenever an attempt is made to remove the car audio from its mounting by cutting its connecting wires, the optocoupler immediately turns off, as its LED cathode terminal is hanging. As a result, the oscillator circuit built around

mately 5 seconds as 'on' and 5 seconds as 'off' time.

Gate N4, with its associated components, forms a self-testing circuit. Normally, both of its inputs are in 'high' state. However, when one switches off the ignition key, the supply to the car audio is also disconnected. Thus the output of gate N4 jumps to a 'high' state and it provides a differentiated short pulse to forward bias transistor T1 for a short duration. (The combination of capacitor C1 and resistor R5 acts as the differentiating circuit.)

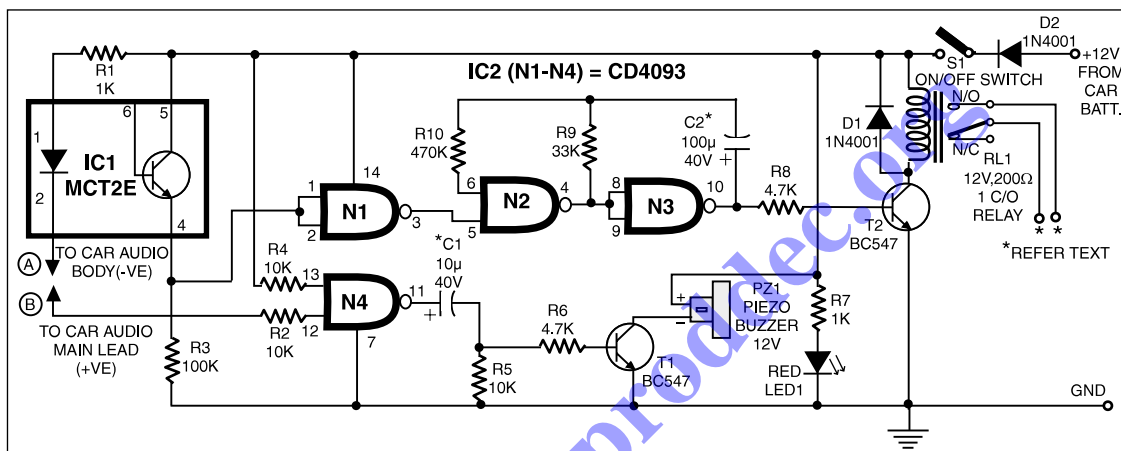
As a result, buzzer in the collector terminal of T1 beeps for a short duration

to announce that the security circuit is intact. This 'on' period of buzzer can be varied by changing the values of capacitor C1 and/or resistor R5.

After construction, fix the LED and buzzer in dashboard as per your requirement and hide switch S1

in a suitable location. Then connect lead A to the body of car stereo (not to the body of vehicle) and lead B to its positive lead terminal. Take power supply for the circuit from the car battery directly.

**Caution.** This design is meant for car audios with negative ground only. □



applied to the gadget (as indicated by LED1) through switch S1, the circuit goes into standby mode. LED inside optocoupler IC1 is lit as its cathode terminal is grounded via the car audio (amplifier) body. As a result, the output at pin 3 of gate N1 goes low and disables the rest of the circuit.

gates N2 and N3 is enabled and it controls the 'on'/off timings of the relay via transistor T2. (Relay contacts can be used to energise an emergency beeper, indicator, car horns, etc. as desired.)

Different values of capacitor C2 give different 'on'/off timings for relay RL1 to be 'on'/off. With 100µF we get approxi-