

SMART VIBRATION SENSOR

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In this vibration sensor alarm circuit, initially, when power switch S1 is flipped to 'on' position, power indicator LED1 lights up immediately. IC LM555 (IC1), wired as a simple latch circuit with control input, is powered and R-C components R4 and C5 connected at its reset pin 4 force the latch to standby mode (with inactive low output). The circuit is driven into sleep mode.

As soon as vibration is detected, MOSFET T1 is fired by the positive-

going pulse output from the vibration sensing mechanism built around piezo-ceramic wafer and associated components. As a result, control input pins 2 and 6 of IC1 latch are grounded. Output pin 3 of IC1 now goes high. The positive supply from output pin 3 of IC1 is extended to three-tone siren generator UM3561 (IC2) through R5, D1 and R6. Components R6 and ZD1 stabilise the input power supply of IC2 to around 3.3V. Output signals from IC2 are amplified by Darlington-pair transistors T2 and T3 to produce alert tone (police siren sound) via loud-

speaker LS1.

Reset switch S1 can be used to switch off the alarm sound by resetting the latch circuit. For safety, use key-lock type switches for S1 and S2. A relay can also be connected at the output socket (SOC1) of the circuit to energise high-power beacons, emergency sirens and fence electrification units.

The circuit works off 9V DC. A compact PP3-/6F22-type alkaline battery can be used to power the circuit. ●

