POWER-ON REMINDER WITH LED LAMP

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Many a times equipment at workstations remain switched on unnoticed. In this situation, these may get damaged due to overheating. Here is an add-on device for the workbench power supply that reminds you of the power-on status of the connected devices every hour or so by sounding a buzzer for around 20 seconds. It also has a white LED that provides good enough light to locate objects when mains fails.

Fig. 1 shows the circuit of power-on reminder with LED lamp. Here, IC NE555 (IC1) is wired as an astable multivibrator, whose time period is set to around six minutes using resistors R1 and R2, preset VR1 and capacitor C1 for sounding the buzzer every hour. The output of IC1 is fed to the clock input of IC CD4017 (IC2). Capacitor C3 and resistor R3 provide power-on-reset pulse to IC2.

When power to the circuit is switched on, pin 3 of IC2 goes high. After around one hour, its output pin 11 (Q9) goes high and the buzzer sounds. This cycle repeats until the power to the circuit is switched off.

The automatic lamp is built around a light-dependent resistor (LDR) and two npn transistors. The LDR offers a very high resistance in darkness, i.e., when no light falls on it. Therefore when power fails, transistor T1 gets reverse biased to drive transistor T2 and the white LED (LED2) glows. The lamp circuit is powered by a 9V rechargeable battery, which is charged via resistor R5 when mains is present. Thus in darkness, the LED remains 'on.'

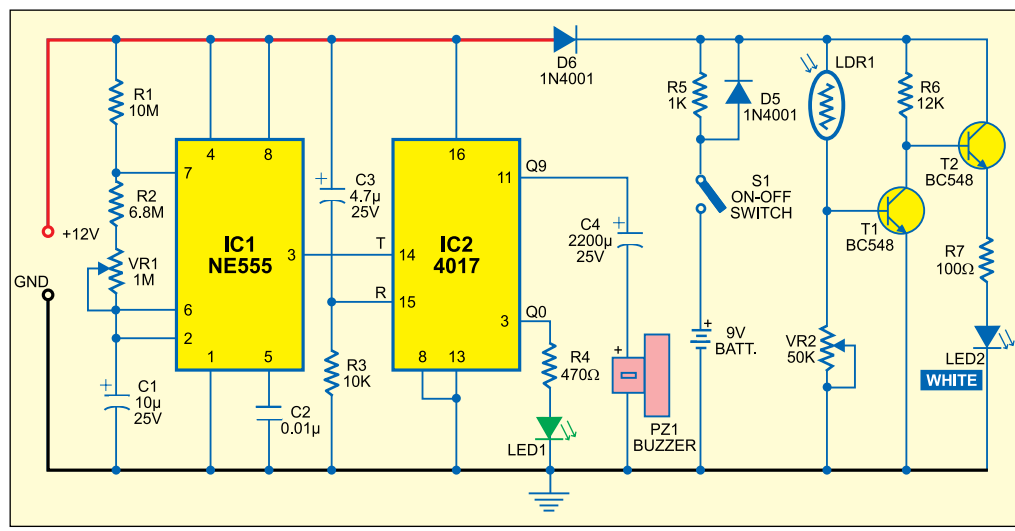

Fig. 1: Circuit of power-on reminder with LED lamp

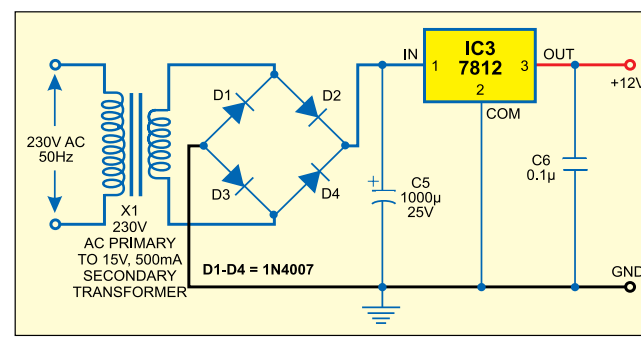

Fig. 2: Power supply circuit

Fig. 2 shows the power supply circuit. The AC mains is stepped down by transformer X1 to deliver a secondary output of 15V AC at 500 mA. The transformer output is rectified by a bridge rectifier comprising diodes D1 through D4, filtered by capacitor C5 and regulated by IC 7812 (IC3) to provide regulated 12V to the circuit. Capacitor C6 bypasses any ripple in the regulated output. ●