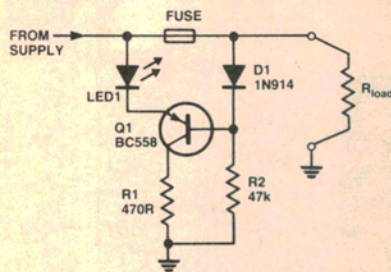


# IDEAS FOR EXPERIMENTERS

These pages are intended primarily as a source of ideas. As far as reasonably possible all material has been checked for feasibility, component availability etc, but the circuits have not necessarily been built and tested in our laboratory. Because of the nature of the information in this section we cannot enter into any correspondence about any of the circuits, nor can we produce constructional details.



## Blown fuse indicator

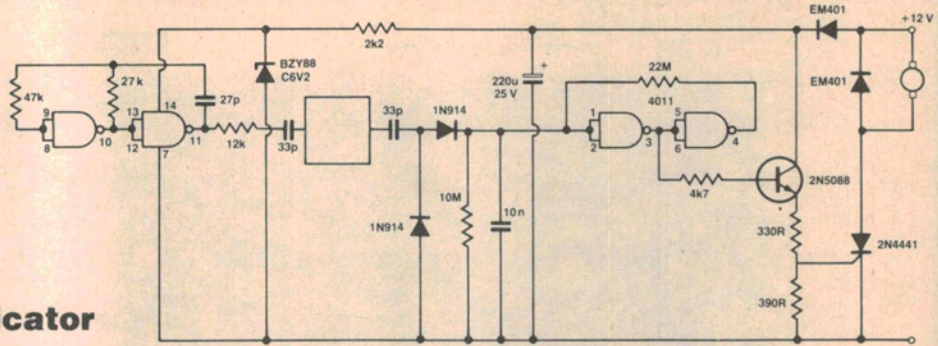
John Beaver, Concord NSW.

Fuses are probably the handiest tool in electronics in that for an outlay of cents they can save hundreds of dollars worth of equipment. When a fuse blows it is usually obvious as the equipment it supplies stops working, sometimes however this is not always the case. If the fuse supplies, for example, power to brake lights in a vehicle or even long delay timer circuits it may not be noticed for days. This circuit will give immediate indication of a blown fuse whether there is a load on the circuit or not as long as there is power.

On a nominal 12 volt supply there is about a 1.7 volt drop across the LED leaving a potential of about 10.3 V on the

emitter of Q1. With the fuse intact there is a potential at the base (via fuse and D1) of about 11 V which holds Q1 off. If, however, the fuse blows, power is removed from the anode of D1 therefore allowing current to flow from the base of Q1 through R2 turning on the LED.

The advantage of this circuit is that in the standby mode it draws only 255 microamps, which makes it particularly useful in battery operated circuits. It may be adapted for different voltages by simply changing the values of R1 and R2 using the following formula:  $R1 = (Vs-2)*100/2$ ,  $R2 = (Vs-2)*10000/2$ . (A flashing LED, which is more of an attention-getter, could be used for LED1.)



## Touch motor control

L.W. Brown of Burwood Vic. designed this circuit of a touch switch suitable for operating 12 Vdc motors. He says that an excellent use for it would be to mount the touch switch on a shop window, allowing the movement of a display via a car electric fan motor.

An oscillator drives a touch plate stuck to the inside of a glass window. Anything capacitively grounding the 50 mm diameter touch plate causes the Schmitt trigger to turn on the SCR. The 10n capacitor provides several seconds extra operation once the touch plate has been released. As

the SCR will latch on with a dc supply, an unregulated, unfiltered supply should be used. A suitable supply would be the A&R Chargette which is double insulated and very safe.

For intermittent operation no heatsink is required and because of this the entire circuit will be smaller than the touch plate. The small size allows the whole switch to be mounted in a sealed plastic box for protection from environmental humidity. The double insulated power supply could enable the system to operate in hazardous locations.

## Avoid flat batteries

B.P. of Putney NSW has obviously forgotten to switch his car lights off on a dark winter's morning and come back, after a day's work, to find that the battery is flat.

This device has been on my car for several years now and I've found that it is extremely useful. Despite the many complicated circuits published, all that is needed is a solid state buzzer, a resistor and a couple of diodes.

the passive side of each switch. For a positive earth system, just reverse all the diodes and the buzzer. Make this up on a small strip of bakelite or insulating material and attach it to the glove box under the dash. It will outlast the car.

The only problem is that if you really want to park the car and leave the lights on for a short time, you have to put up with the buzzer.

When the ignition is switched on both sides of the buzzer are held at a nominal 12 V, so there is no sound. The moment the car is stopped and the ignition switched off, current can flow from the lighting circuits through the buzzer and the resistor to earth. It is a very penetrating sound, so there is no way you will leave the lights on!

The connections are made to

There are two possibilities to overcome this problem.

1. Insert a switch between the resistor and earth, but don't forget to turn it back on later.
2. Add a relay and a push button switch (on the dash board), as in Figure 2, and you can override the system. After you have switched off the lights the relay will drop out, leaving the device reset for further protection.

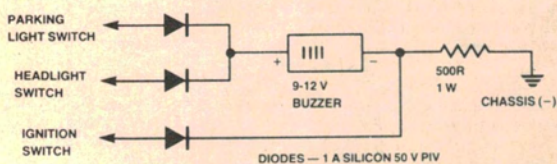


Figure 1. A buzzer warns you that you have left the lights on.

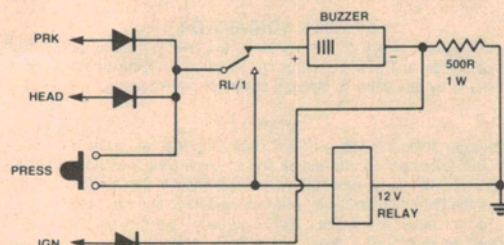


Figure 2. Over-riding the system.