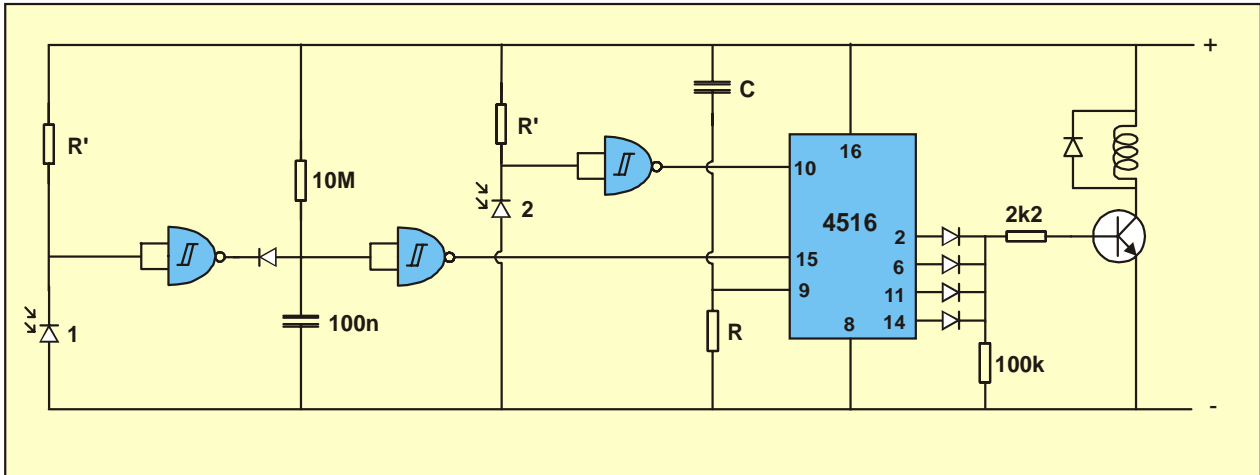
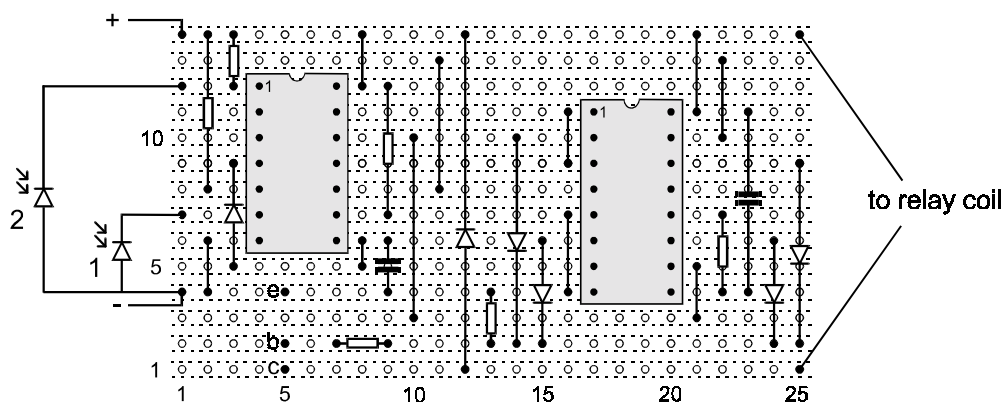


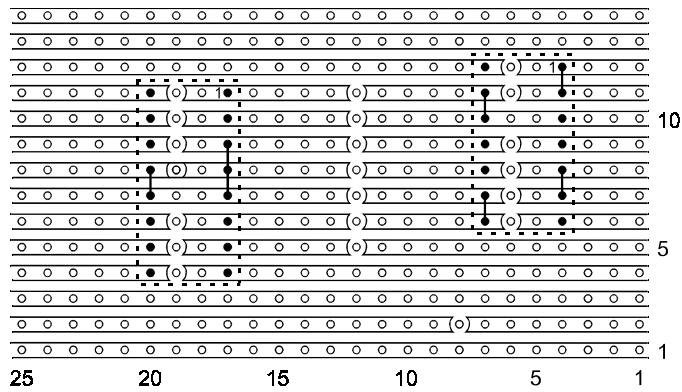
## Person Counter



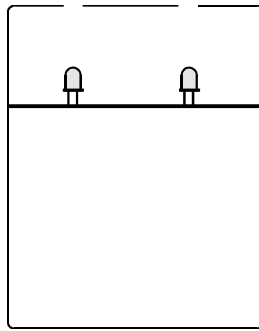
The integrated circuit is a 4516 up/down counter. Diode 2 determines the count direction. The value of the resistors  $R'$  depends on the type of diode used. (You will probably need resistors in the range 100k to 1M.) When entering the room, the beam illuminating diode 1 must be cut first. This causes the counter to count UP one. If (when a person leaves the room) the beam illuminating diode 2 is cut and *while this beam is still cut* the beam illuminating diode 1 is cut, the counter will count *down* one. The output can be used (with a relay and driver) to switch on a light when a person first enters the room and then to switch the light off when the last person leaves the room (maximum number of people, 15).

Pins 1,3,4,5,12, and 13 of the 4516 must be connected to battery negative (this is shown on the vero diagram). The “switch-on reset” network (R and C) can have almost any values; try 100k and 1.5nF.





Use I.R. receiver diodes with black insulating tape (or something similar) around them. Alternatively, put the diodes in a small plastic box, as shown below.



N.B. Some I.R. detectors have the usual “cathode” marking on the wire which is actually connected to the negative of the supply. (This might sound logical but, if you think about it, you will realise that, in circuits like this one, it's the opposite to the way diodes are usually marked!)

You can add a buzzer which sounds each time someone enters or leaves the room. A suitable circuit is shown below.

