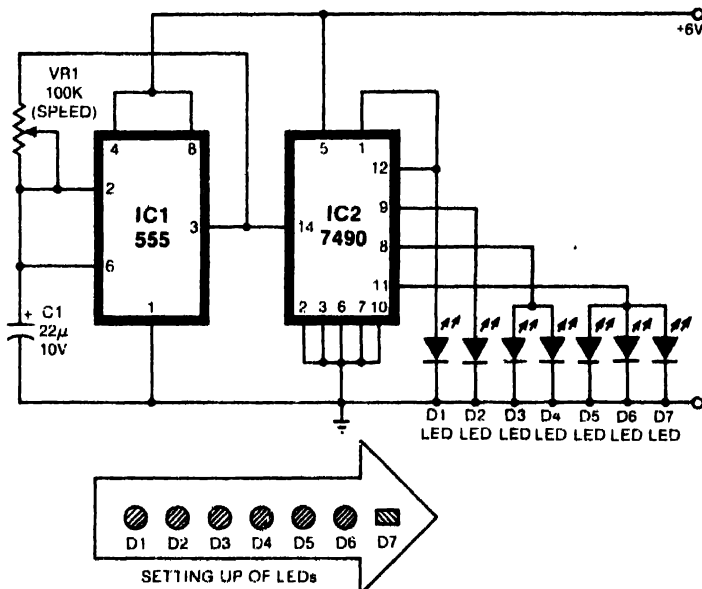


LED Direction Indicator

This circuit, being economical, can be used in place of blinking indicators in bikes or on the instrument panel in cars etc. The circuit uses the 555 timer IC for pulse generation and IC 7490 as the BCD counter. The LEDs, if positioned closely in the same manner as shown, appear to move in one particular direction when the frequency of pulses is increased. If the frequency is too high, all the LEDs appear to glow at the same instant.



The binary outputs of 7490 as it counts from 0 to 9 are given below:

COUNT	Q3	Q2	Q1	Q0
0	0	0	0	0
1	0	0	0	1
2	0	0	1	0
3	0	0	1	1
4	0	1	0	0
5	0	1	0	1
6	0	1	1	0
7	0	1	1	1
8	1	0	0	0
9	1	0	0	1

If the LEDs are connected across the output, '1' indicates that the LED lights up. Here '1' appears to be moving left as counting progresses. Hence the light appears to move left if the counting is fast enough so that the individual flickers are not visible.

IC 7490 has been used instead of IC 4011 since the circuit

can also be used to check if the ICs 7490 (or 7493) are good.

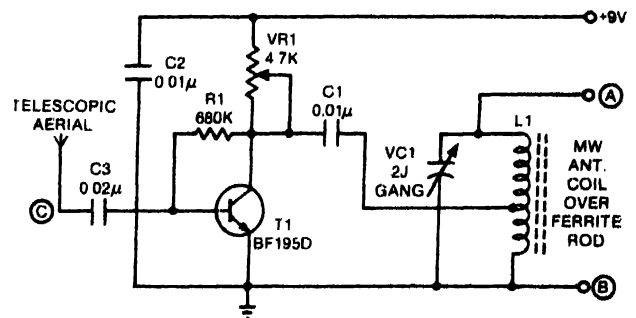
It is interesting that a digital IC specifically designed for binary counting can also be used in a project entirely different from the one for which it is intended.

RAMESH R.

SW AM Booster for Valve Radio

Here is a low-cost project that can pack a lot of extra power into an old valve-type, weak radio receiver which cannot receive shortwave (SW) signals without an external aerial. It can also be used with a 2-band transistor receiver to boost the SW signals. Besides, it permits extensive broadcast band DXing with any simple AM radio receiver.

The transistor T1 (BF195D) is wired as a common-emitter RF amplifier with base bias taken from the collector and also forms a tuned circuit along with L1 and VC1. Collector voltage is taken from the positive rail through a variable potentiometer VR1 as it should be varied for getting the desired performance. VC1 must be adjusted for optimum performance and shortwave DXing. Point A should be attached to a crocodile clip and then connected to the aerial points of the receiver. A small telescopic aerial should be attached over the cabinet of the booster from point C as shown in the circuit diagram.



Assemble the unit on a small general-purpose veroboard. House it in a small plastic cabinet with the antenna coil L1 and the ferrite rod cemented to the side or back of the cabinet using an adhesive like araldite for best performance. Adjust coil L1 over the ferrite rod before cementing it on to the cabinet. The unit should be positioned parallel to the built-in antenna coil of the receiving set.

MUKUND H. TODMAL

A Simple Temperature Controller

Here is the circuit of a simple and inexpensive temperature controller which can control temperature from about 20°C to 200°C with an accuracy of 0.5°C.

The controller has been designed and fabricated using the