

# NUMERIC WATER-LEVEL INDICATOR

■ DANIYAL SYED

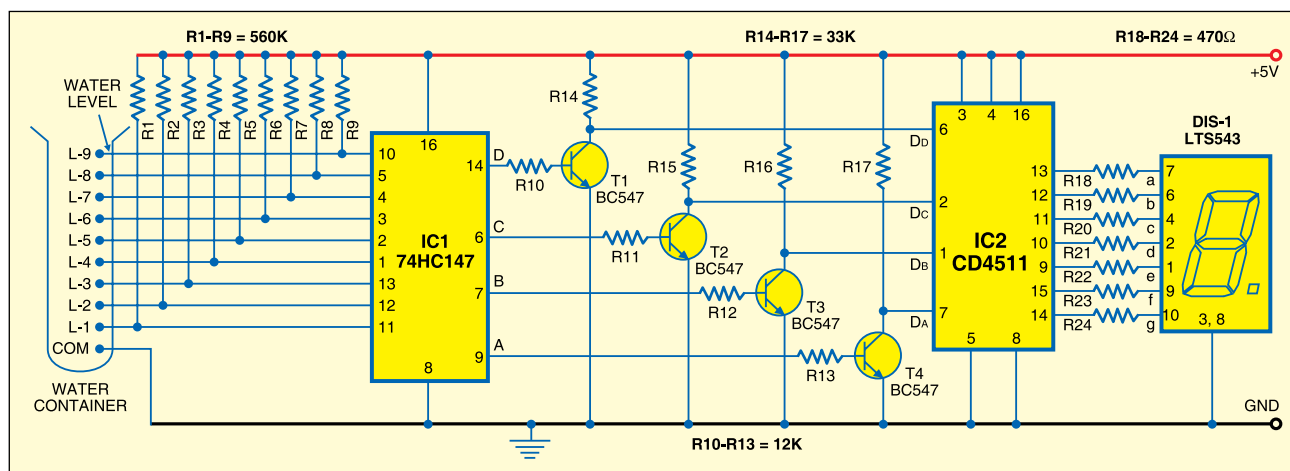
Most water-level indicators for water tanks are based upon the number of LEDs that glow to indicate the corresponding level of water in the container. Here we present a digital version of the water-level indicator. It uses a 7-seg-

terminal of the sensor must be kept at the bottom of the container (tank). IC 74HC147 has nine active-low inputs and converts the active input into active-low BCD output. The input L-9 has the highest priority.

The outputs of IC1 (A, B, C and D) are fed to IC2 via transistors T1 through T4. This logic inverter is used



when the water level reaches L-1 position, the display shows '1,' and when the water level reaches L-8 position, the display shows '8.' Finally, when



ment display to show the water level in numeric form from '0' to '9.'

The circuit works off 5V regulated power supply. It is built around priority encoder IC 74HC147 (IC1), BCD-to-7-segment decoder IC CD4511 (IC2), 7-segment display LTS543 (DIS1) and a few discrete components. Due to high input impedance, IC1 senses water in the container from its nine input terminals. The inputs are connected to +5V via 560-kilo-ohm resistors. The ground

to convert the active-low output of IC1 into active-high for IC2. The BCD code received by IC2 is shown on 7-segment display LTS543. Resistors R18 through R24 limit the current through the display.

When the tank is empty, all the inputs of IC1 remain high. As a result, its output also remains high, making all the inputs of IC2 low. Display LTS543 at this stage shows '0,' which means the tank is empty. Similarly,

the tank is full, all the inputs of IC1 become low and its output goes low to make all the inputs of IC2 high. Display LTS543 now shows '9,' which means the tank is full.

Assemble the circuit on a general-purpose PCB and enclose in a box. Mount 7-segment LTS543 on the front panel of the box. For sensors L-1 through L-9 and ground, use corrosion-free conductive-metal (stainless-steel) strips. ●