

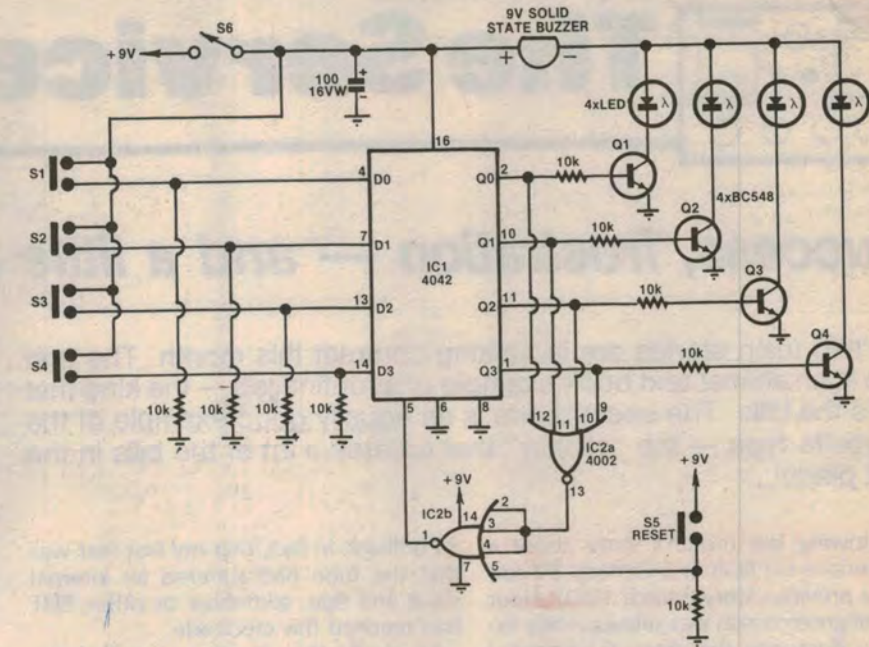
## Quiz game adjudicator

Here's a circuit you can use to play your own quiz games like those on TV. It sounds a buzzer and lights an LED to show which of four switch buttons was pressed first – and it can't be fooled.

The circuit is based on a 4042 quad D latch IC. Initially, the four data inputs D0-D3 are pulled low by 10k $\Omega$  resistors and so the latch outputs, Q0-Q3, are also low. As soon as one of the buttons (S1-S4) is pressed, the data input connected to it is pulled high, thus forcing the corresponding latch output high (eg, if S1 is pressed, Q0 goes high). This turns on the corresponding transistor (Q1-Q4) to activate the buzzer and light the appropriate LED.

At the same time, the high data output is decoded by NOR gates IC2a and IC2b, the output of IC2b going high to disable the 4042. The contents of the latch are now effectively "frozen" and the circuit ignores inputs from the remaining switch buttons.

Switch S5 provides the reset function. When S5 is closed, pin 5 of IC2b is pulled



high and the pin 1 output goes low to enable the 4042 for the next round.

Power for the circuit can be derived from a 9V battery or from a plugpack

supply. If you don't wish to use the buzzer, it should be replaced by a 1k $\Omega$  resistor.

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