

PSEUDO-RANDOM GENERATOR

This circuit generates a psuedo-random sequence of 1s or 0s ("heads" or "tails"). It's based on a 7-bit shift register with the output taken from register *G*. If the output is high, the *Heads* LED is lit; a low output lights the *Tails* LED. It's slightly biased: since the 0000 state is not allowed, 127 "tosses" results in 64 heads and 63 tails.

IC1a, a 7413 dual Schmitt trigger, debounces the switch contacts and clocks the 74164 register one step. The EX-OR gate is made from four 7400 NAND gates. The other half of the Schmitt trigger, IC1b, is used as an inverter to turn the green LED on when *G* is low.

Remember that the sequence is only pseudo-random, not truly random. In theory, you could memorize it and be able to predict the next result. But it's highly unlikely that any normal person could

succeed in such a feat of memory and recognize how far along they were in the

sequence. So, *in practice*, this is as random as tossing a coin.

