

## **BURGLAR ALARM**

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We're gonna make a burglar alarm! Part of this circuit is a switch that activates it. How does a switch make an alarm? One wire gets attached to the door, and the other to the door frame. If the door is closed, then the switch is connected. When the door opens, the connection is broken, and the alarm goes on. Next time you walk into a store, look for weird little boxes on the doors, or windows. These are the alarm switches. Now lets make our own.

**Start by connecting #3 to #35**

**Connect #12 to #38**

**Stick a long yellow wire in spring #38, and let it just hang there.**

**Connect #11 to #19**

**Connect #19 to #33**

**Connect #33 to #36**

**Connect #27 to #37**

**Connect #37 to #39**

**Stick another long yellow wire in spring #39 and leave it there for later.**

**Connect #4 to #20**

**Connect #20 to #21**

**Connect #21 to #26**

**Connect #22 to #28**

**And the last connection is #28 to #34**

That's it, except for the battery. But before you connect the battery, twist together the ends of the two loose yellow wires to form the switch. Then hook the battery. When you pull the wires apart, the Piezo Transducer will make an obnoxious sound. That's the alarm. If it doesn't, hit the check your connections. If it does, you've done it!

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### Here's how the circuit works:

This circuit is set up so that the current can either go through the yellow wires, or through the piezo transducer. Either way makes a complete circuit, but only one way makes noise.

Let's think about it in terms of an Electronic Pinball Game, where the balls represent the electrons coming from the battery.

Electricity likes to take the path of least resistance. In our Electronic Pinball Game, the electrons get a push from the battery, and ping-pong between the transformer and the capacitor. When you connect the yellow wires, the electrons take that path because the resistance is low, and with no piezo in the loop, no noise is made.

When the connection with the yellow wire is broken, the electrons flow through the only other path available through the piezo transducer, which makes a noise: The alarm is sounded!

You can use your alarm in all sorts of ways. Hook it to your bedroom door to keep your nosy brothers or sisters out... or, connect it to the refrigerator to see who's snacking between meals!