

Bird in a Box

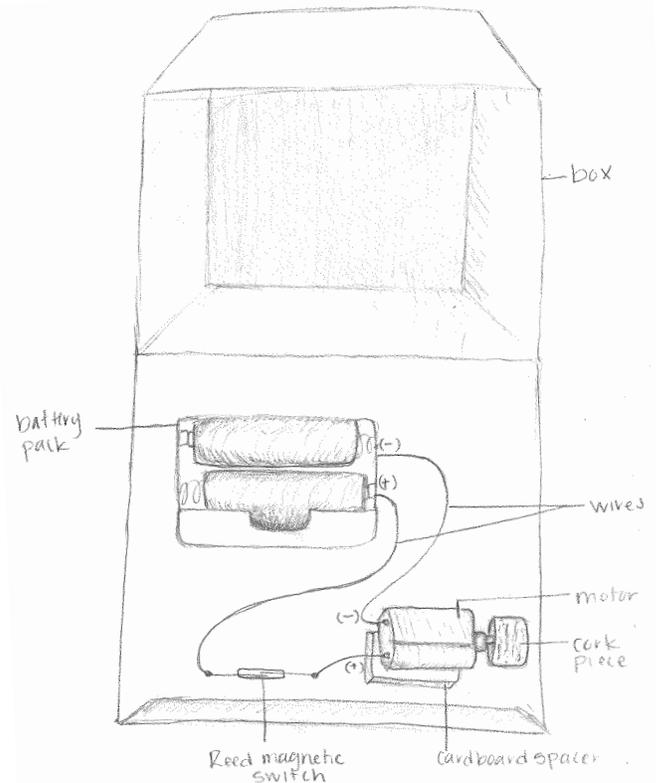
How to Build It:

Materials:

- | | | | |
|---|--|-----------------------------------|---|
| <input type="checkbox"/> 3V DC motor | <input type="checkbox"/> AA battery holder | <input type="checkbox"/> Scissors | <input type="checkbox"/> Hot glue guns and hot glue |
| <input type="checkbox"/> Reed magnetic switch | <input type="checkbox"/> Small piece of insulated wire | <input type="checkbox"/> Markers | |
| <input type="checkbox"/> Piece of cork | <input type="checkbox"/> Cardboard box | <input type="checkbox"/> Magnet | |
| <input type="checkbox"/> AA batteries | <input type="checkbox"/> Soldering iron | | |

Procedure:

1. Push a small piece of cork onto the motor spindle.
2. Solder the small piece of insulated wire to the reed magnetic switch and the motor.
3. Solder the other side of the reed magnetic switch to the red wire from the battery pack.
4. Solder the black wire from the motor to the other side of the motor.
5. Insert batteries into the holder and test by holding the magnet close to the reed switch.
6. If the motor turns on, use hot glue to attach the motor, batteries, and switch to the inside of the cardboard box. Making sure to mark where the switch goes. The box should vibrate a little and make a tapping sound when the switch is activated with the magnet.
7. Put the magnet near the switch to listen to the bird in your box!



How it Works:

The switch in this project is a reed magnetic switch. Inside the glass tube are two thin pieces of metal, one of which is attracted to magnets. When the magnet is over the switch, the magnetic field attracts one piece of metal to it, pulling it up against the piece of metal that isn't magnetic or doesn't flex. When the two pieces of metal bump into each other, the circuit is completed because electricity can flow from one side of the switch to the other and the motor turns on! The motor has a piece of cork stuck to it so that when it turns on, the cork will bump against the inside of the box making a beating or humming noise.

Experiment!

What would happen if you lost your magnet and couldn't flip the switch? What other type of switch could you use? What would happen if you put a different type of material on the motor instead of a cork?