



## Make a twitchy, bug-like robot with a toy motor and a mint tin.

**You will need:** Metal candy mint tin, wire coat hanger, 1.5V motor from a battery-powered toy, small metal washers (4), small bolts and nuts (2), about 1' of insulated wire, paper clip,  $\frac{1}{4}$ M flat plastic faucet washers  $\frac{37}{64}$ " OD (3), AA battery, hot glue gun, hot glue, cable tie

When my 3-year-old daughter dropped the \$1 battery-powered fan I bought her, the plastic case cracked, ruining it. I promised her I'd make something even better using the fan's motor. I'm a fan of Chico Bicalho's wonderful windup toys, so I made a robot inspired by his designs. I call mine the Vibrobot, and you can make one in a couple of hours or less.

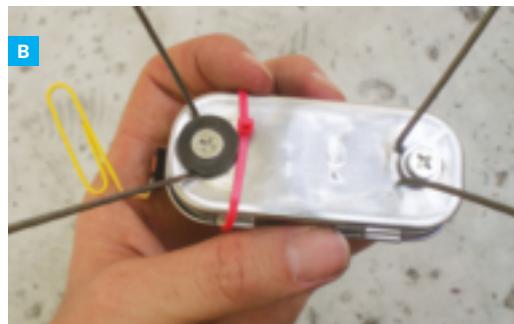
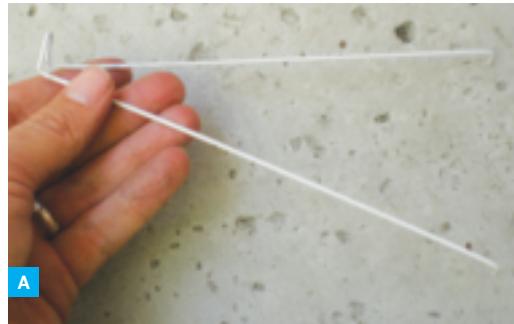
### 1. Prepare the candy tin.

Sand the paint off the tin, if you wish. Punch 2 holes through the bottom of the tin on either end, using a hammer and a Phillips screwdriver. You'll use these holes to attach the legs. Punch a hole through the lid near one end. This hole is for routing the wires.



### 2. Make the legs.

Snip off 2 long pieces of wire from a coat hanger and bend each into a V-shape. Bend the tip of the V into a right angle, and then bend a little "foot" at each end (Figure A). Attach the legs to the holes in the tin using bolts, nuts, and metal washers (Figure B). Add a dollop of hot glue to each foot to give them rubber tips.



### 3. Install the motor.

Push a paper clip through one of the plastic flat washers, and attach the washer to the spindle of the motor. Solder 2 wires to the 1.5V battery, insert the battery in the candy tin, and thread both wires through the hole in the lid. Solder one wire to a lead on the motor, and solder a third loose wire to the other motor lead. Put 2 plastic flat washers between the motor and the candy tin, and secure the motor to the tin using a cable tie.



To operate the Vibrobot, twist the loose battery wire and the loose motor wire together (you can also solder an alligator clip to one of the wires for a switch). Experiment with the critter by gently bending the paper clip and legs into different shapes and observing the effects. Watch a video at [makezine.com/10/123\\_vibrobot](http://makezine.com/10/123_vibrobot).