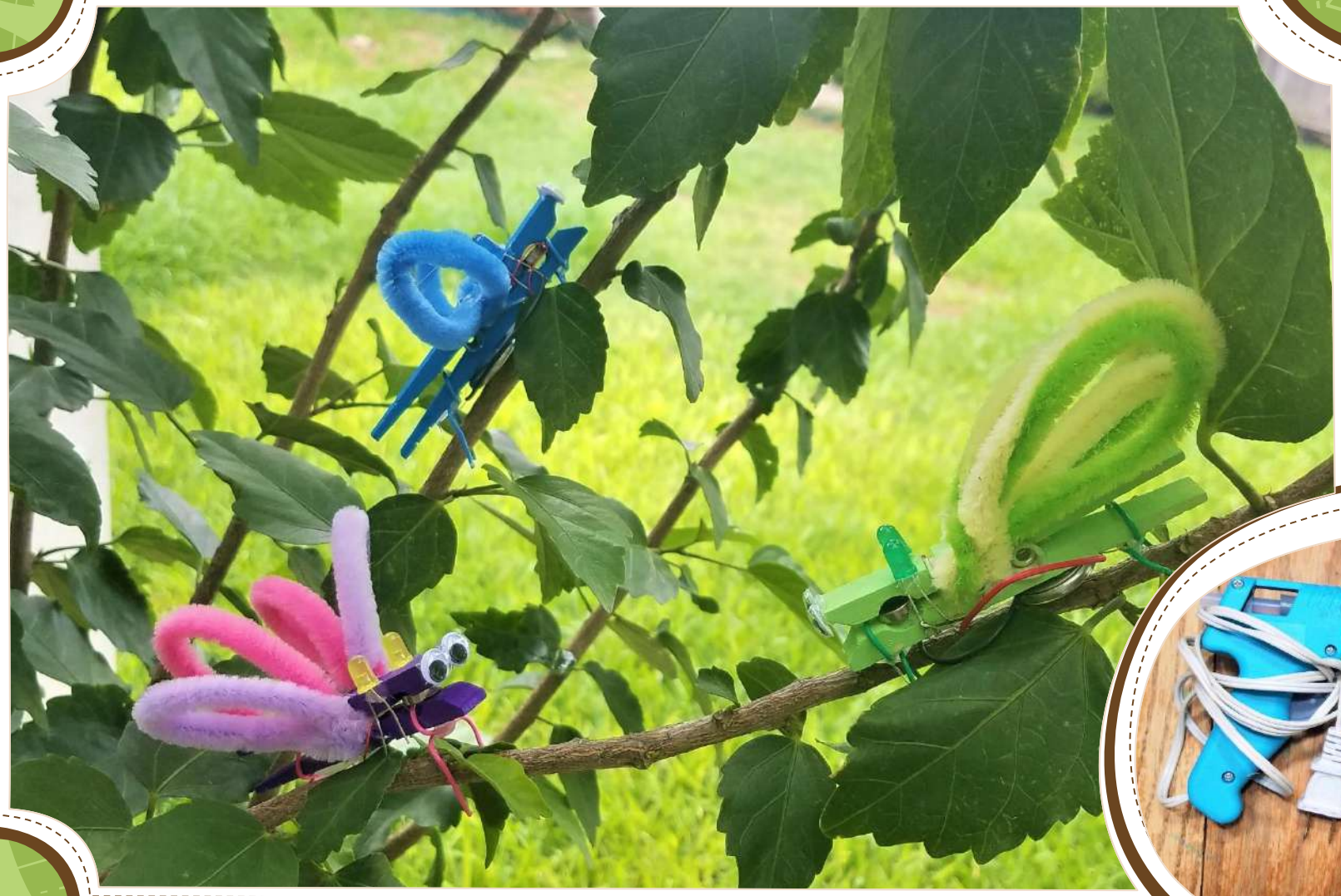
RoboBug

Step-by-Step Instructions
by: Sierra Baumbusch

Design Inspiration From:
JoshBuilds YoutTube Channel



Materials

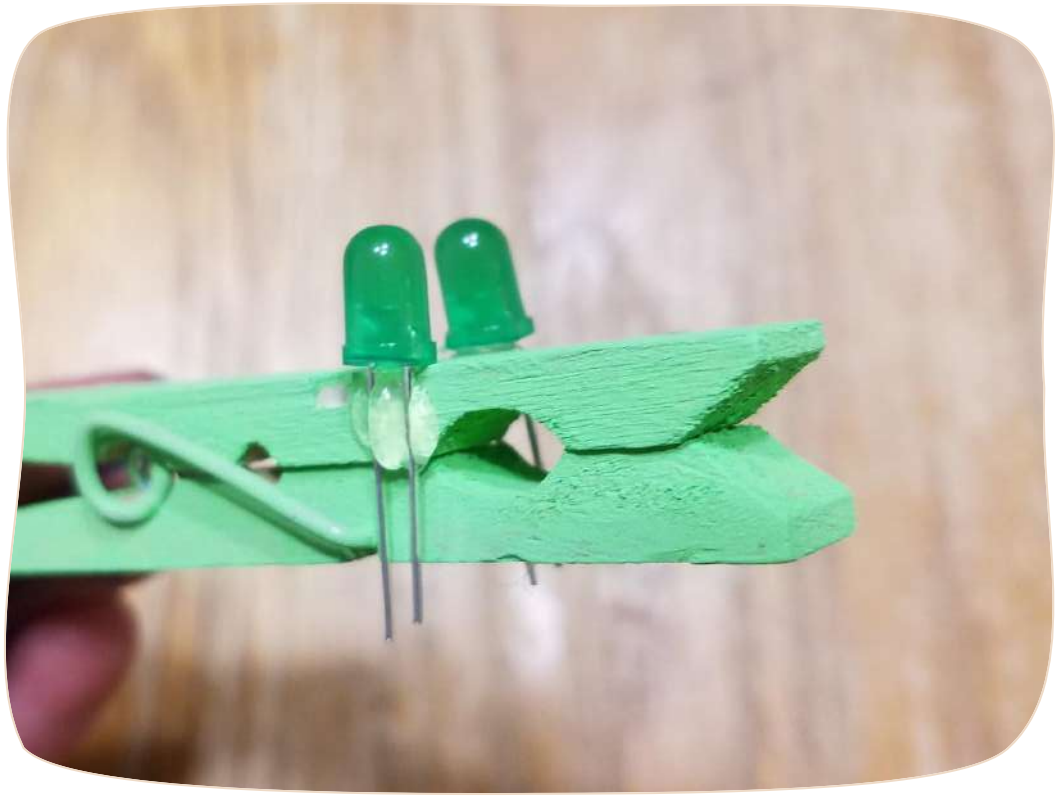
- 1 Clothespin
- 2x LEDs
- 1x Vibration Motor
- 1x Lithium Button cell Battery
- 2x Jumper Wires
- Tape (any kind)
- 2x Paper Clips
- Double-Sided tape
- Scotch Tape
- Optional:
  - Paint
  - Pipe Cleaners (wings)
  - Googly-Eyes
- Cost: $10-$15 (to make five RoboBugs)

Tools

- Hot Glue Gun (glue sticks)
- Soldering Gun (solder)
- Paint Brush (if using paint)
- Wire Cutter/Stripper

STEP 1:

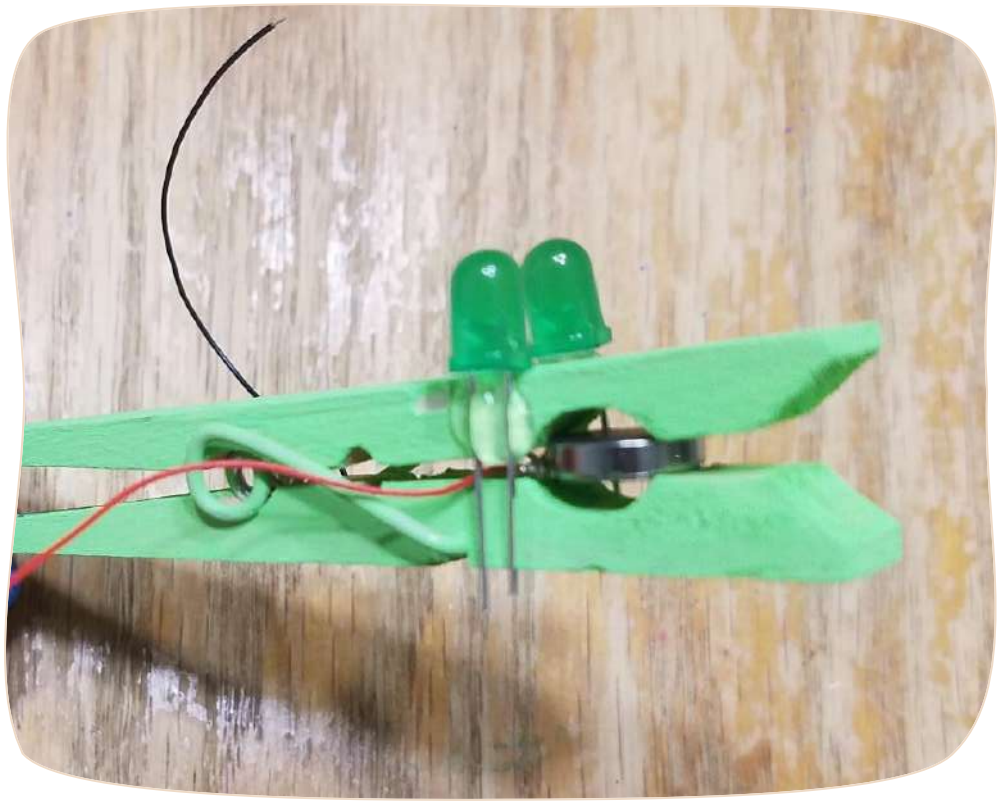
- Paint clothespins. Allow to dry fully
- Tip: Speed up the drying process with a blow dryer



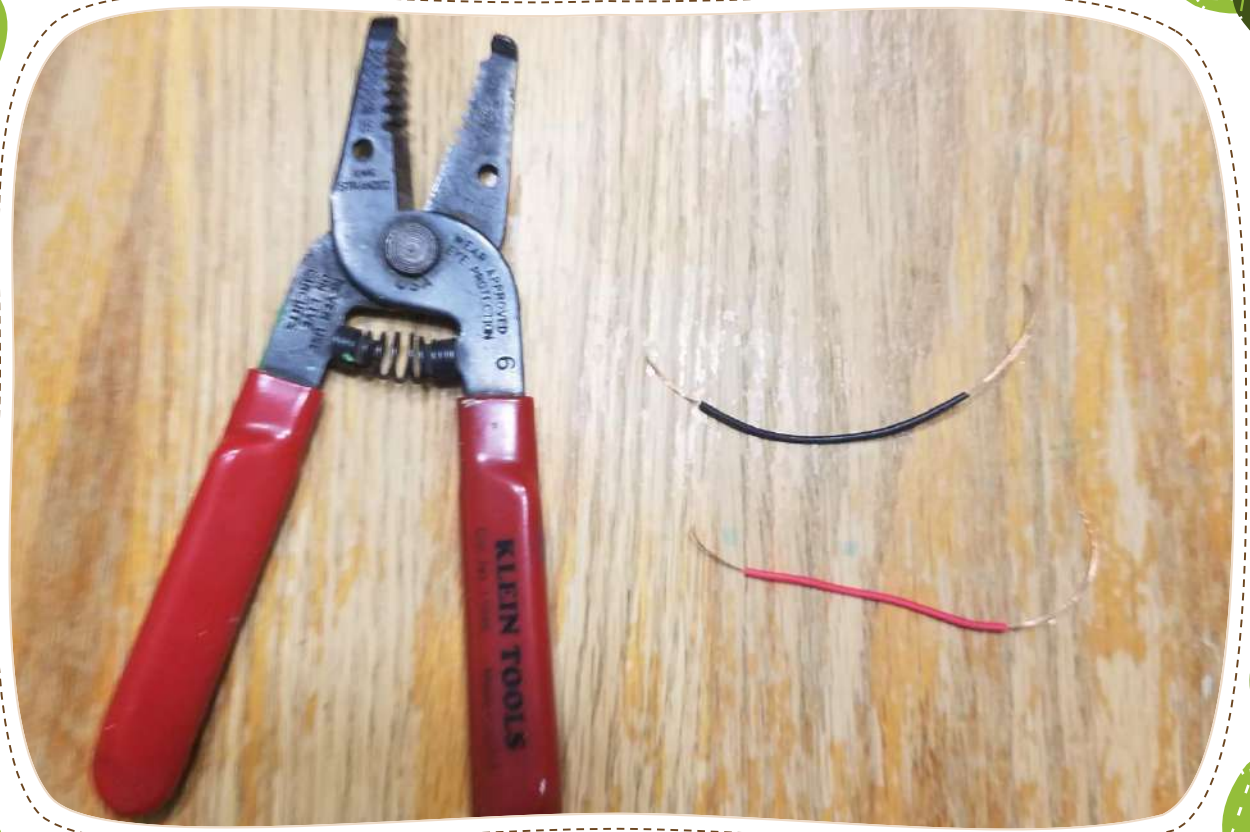
Step 2:

- Hot-Glue two LED’s on either side of the clothespin head
- Orient the pins of the LED so the longer legs (anodes) are towards the back of the pin

Step 3:

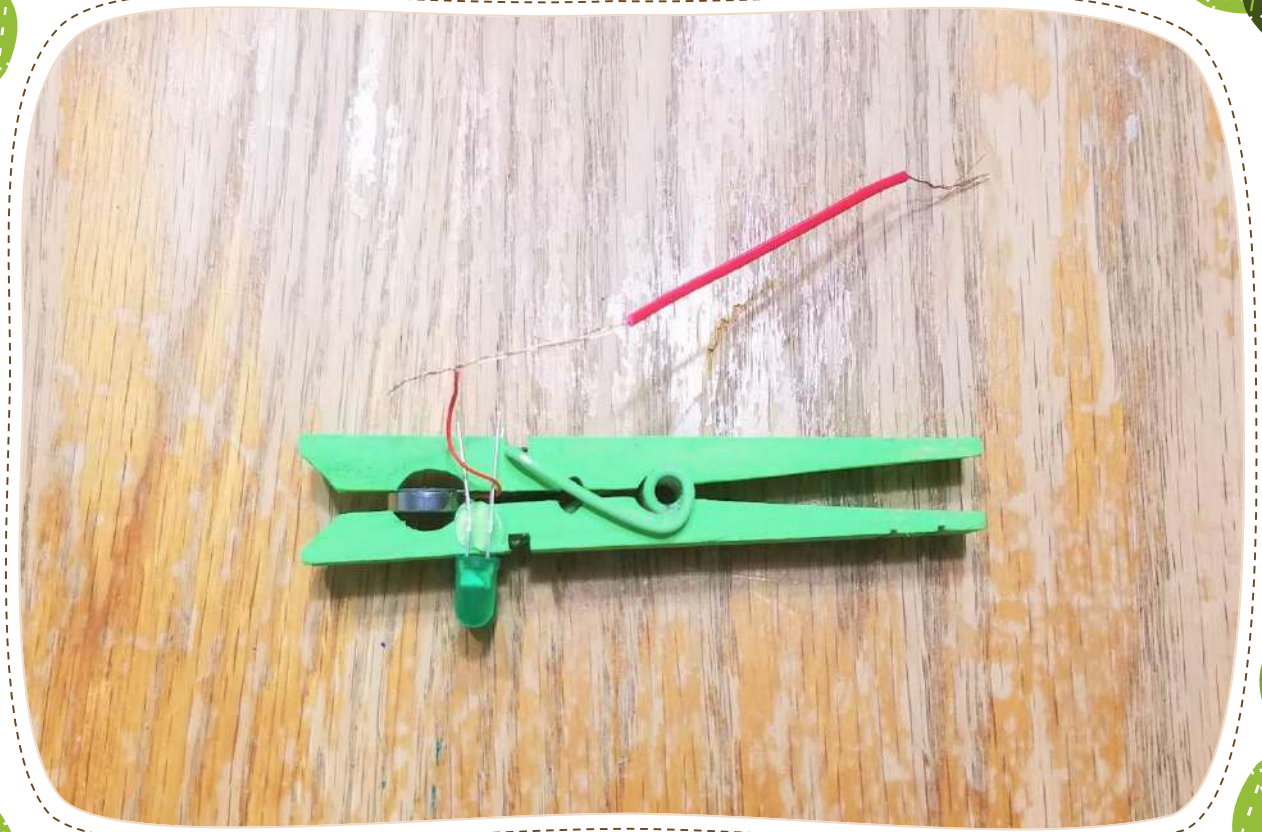


- Open the clothespin and place the vibration motor inside the “mouth”
- Pull wire behind and underneath the LEDs
- Have the **red** wire on the **right side** of the pin



Step 4:

- Cut two 3-inch pieces of different colored jumper wires (red & black is used here for simplicity)
- Strip both ends of the wire, with one side 1-inch long

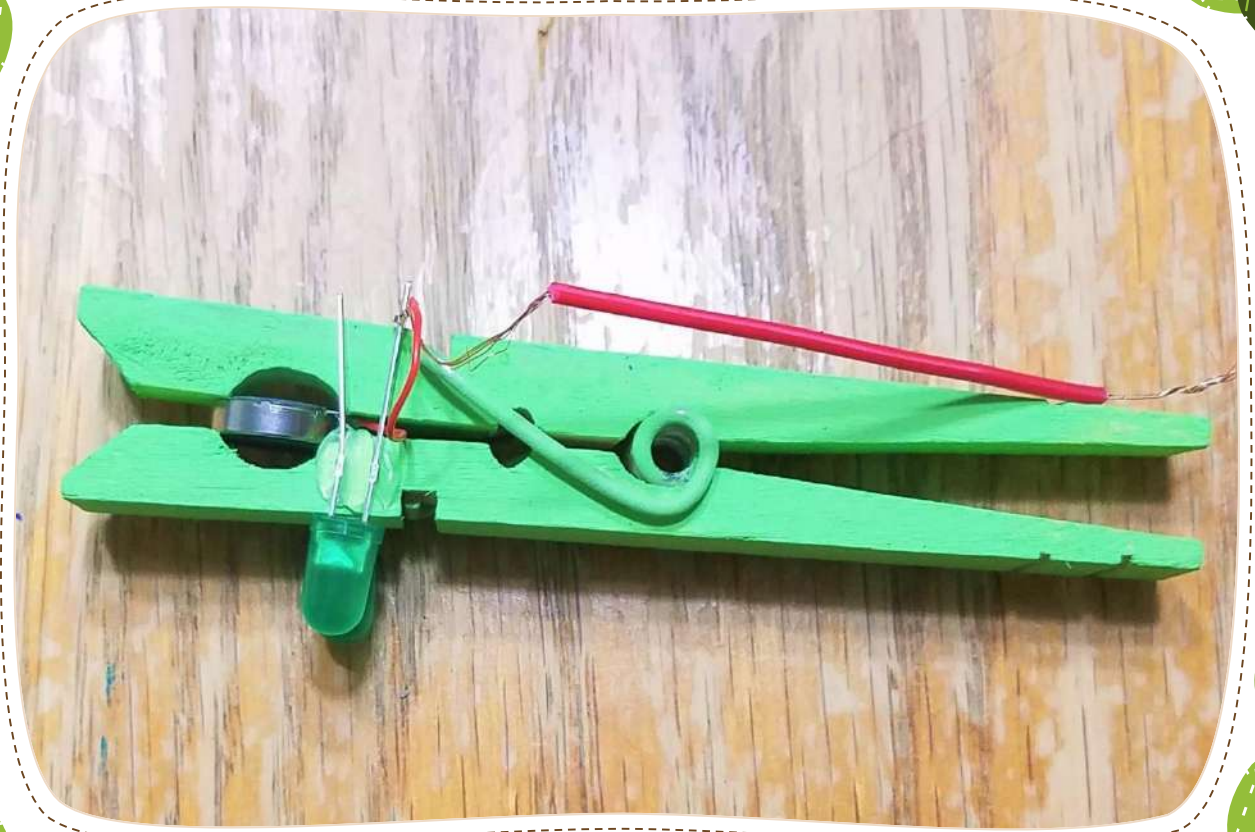


Step 5:

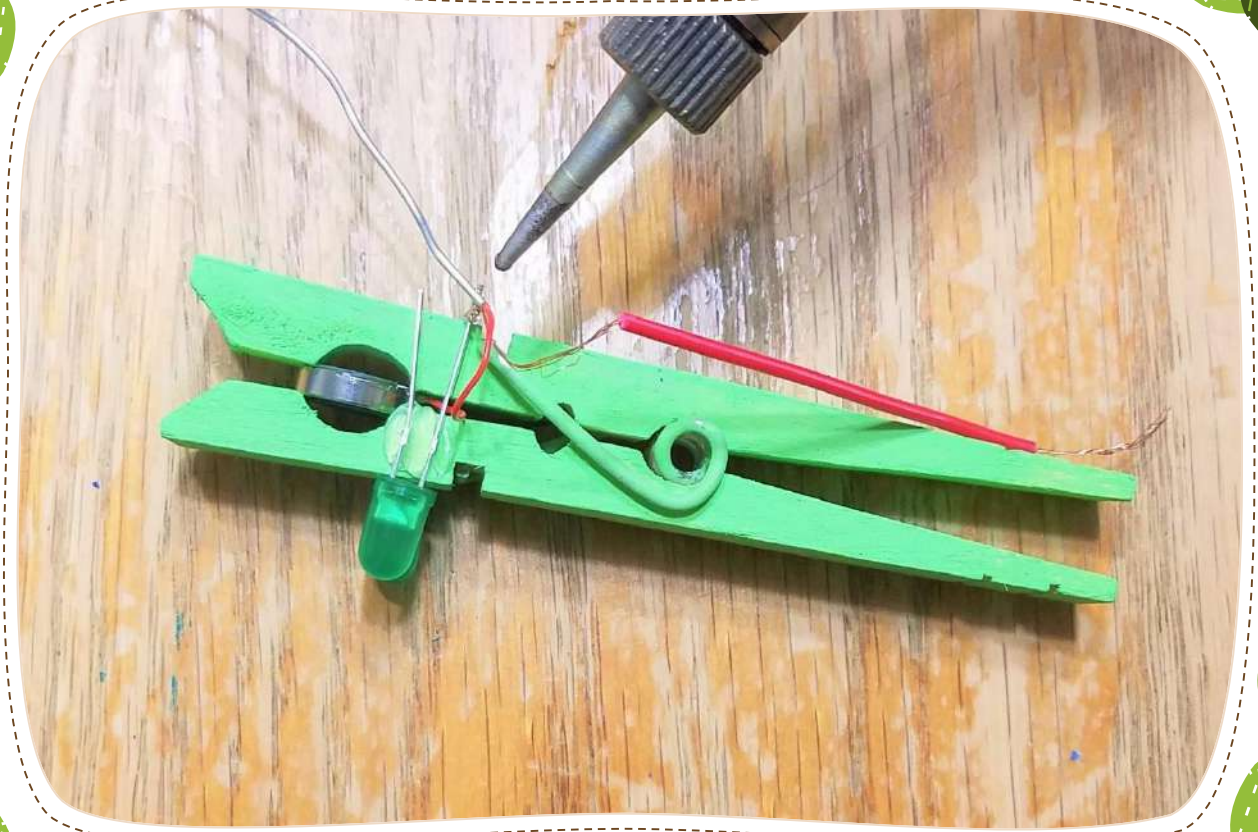
- Twist the **tip** of the long end of the wire with the **red** wire on the vibration motor

- Note: The wires can be soldered individually to the leg without twisting; the twisting just makes it easier. Still be sure to solder only the **tip** of the jumper wire

Step 6:

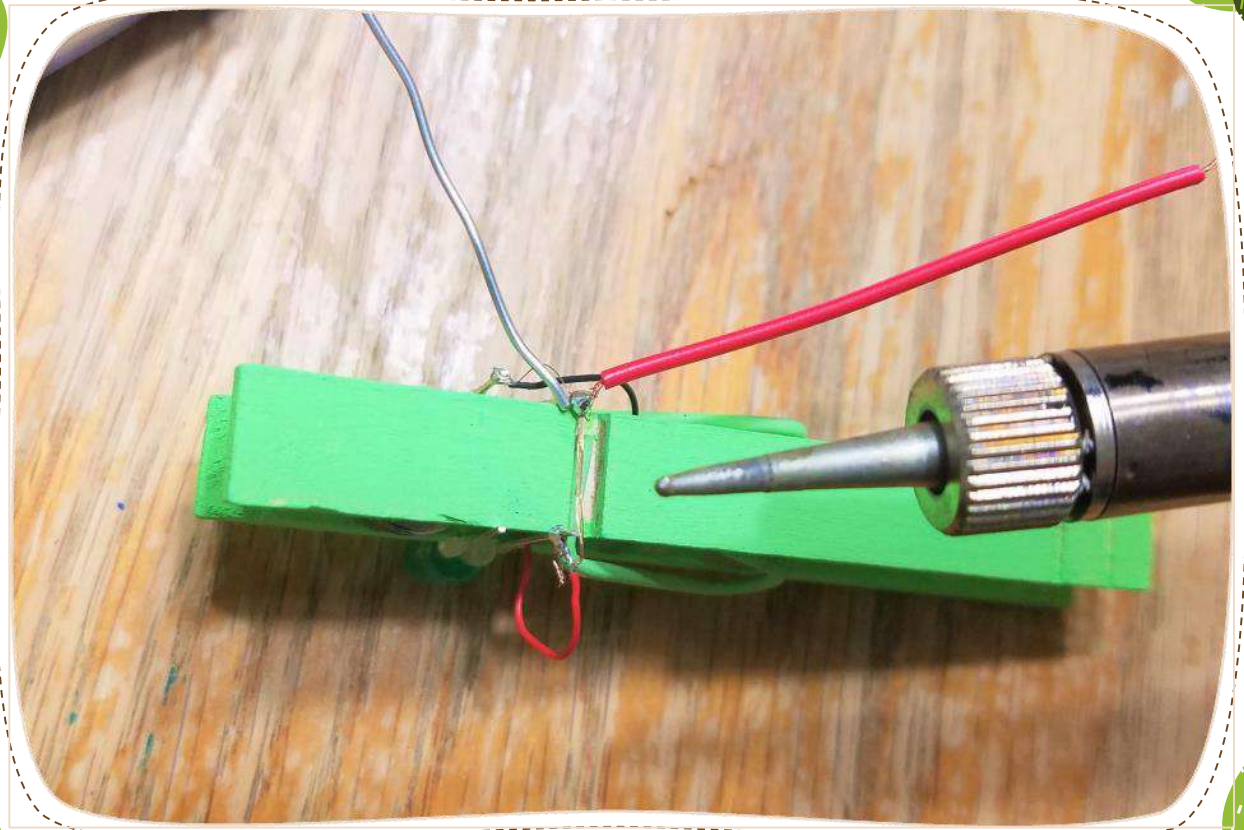


- Wrap the twisted tip around the back left LED wire. This should be the longer leg



Step 7:

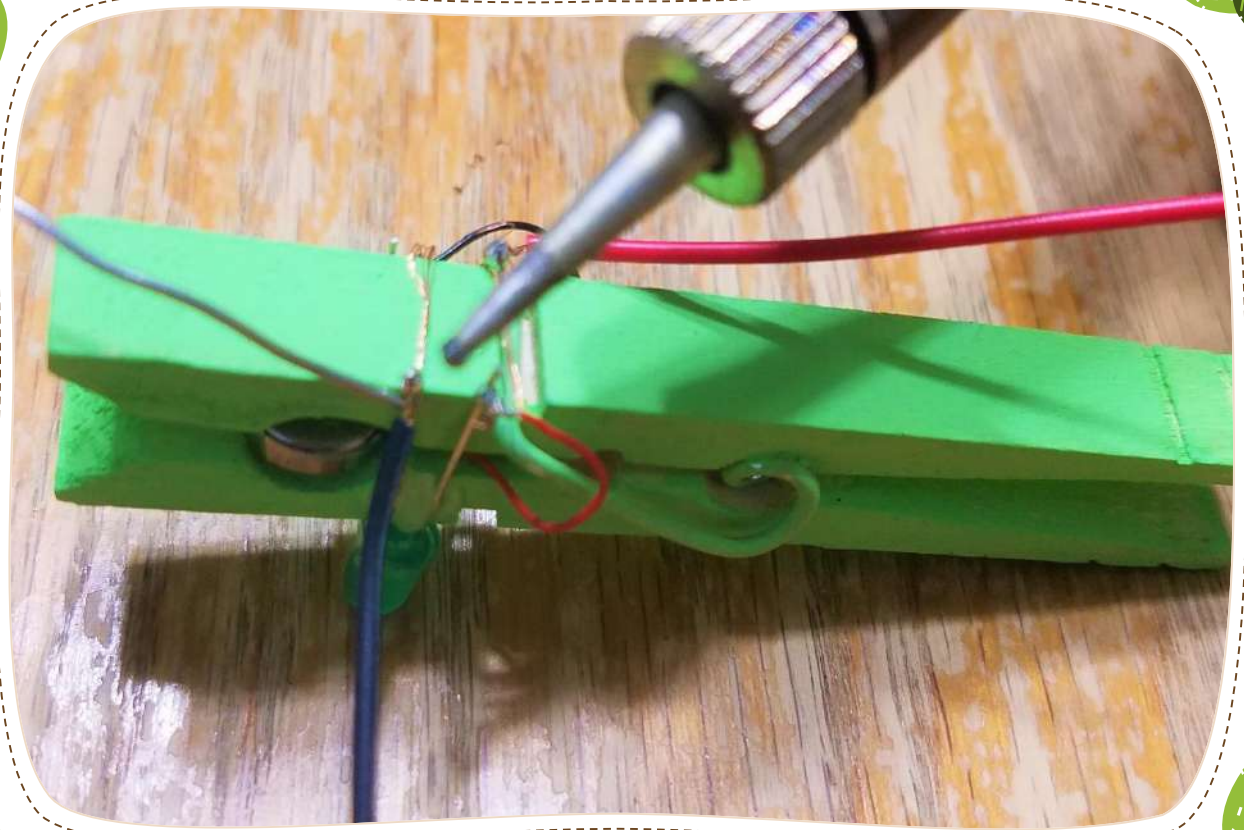
- Solder the connection.
- **Be sure there is enough exposed wire to reach the other side of the LED**



Step 8:

- Take the long end of the wire (the tip is soldered to one side) and wrap it around the other long back leg on the opposite side of the pin's head
- Solder this connection

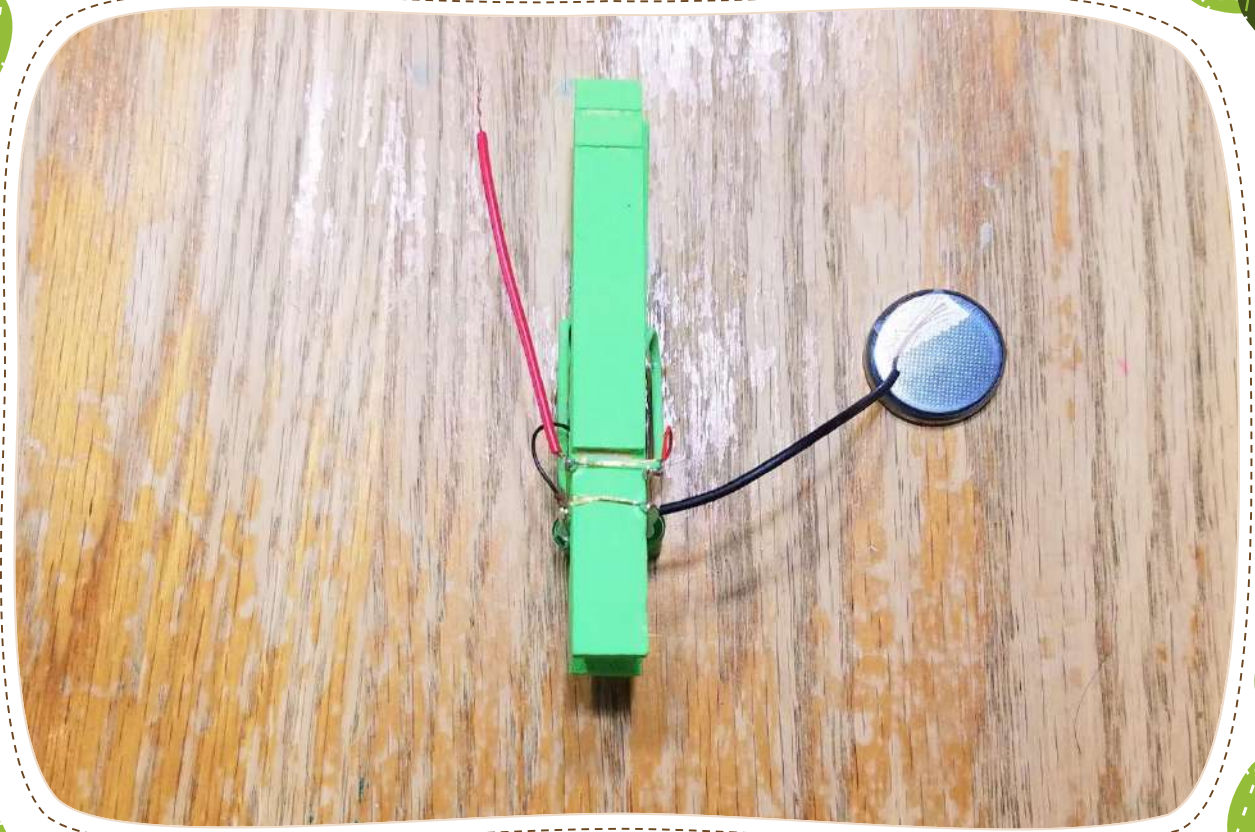
Step 9:



- Repeat steps 5-8 with the black wire
- Attach the connections to the front short legs (cathodes)

Step 10:

- At this step, the bug should look as pictured, with the short ends of the jumper wire exposed and pointed towards the back of the clothes pin.



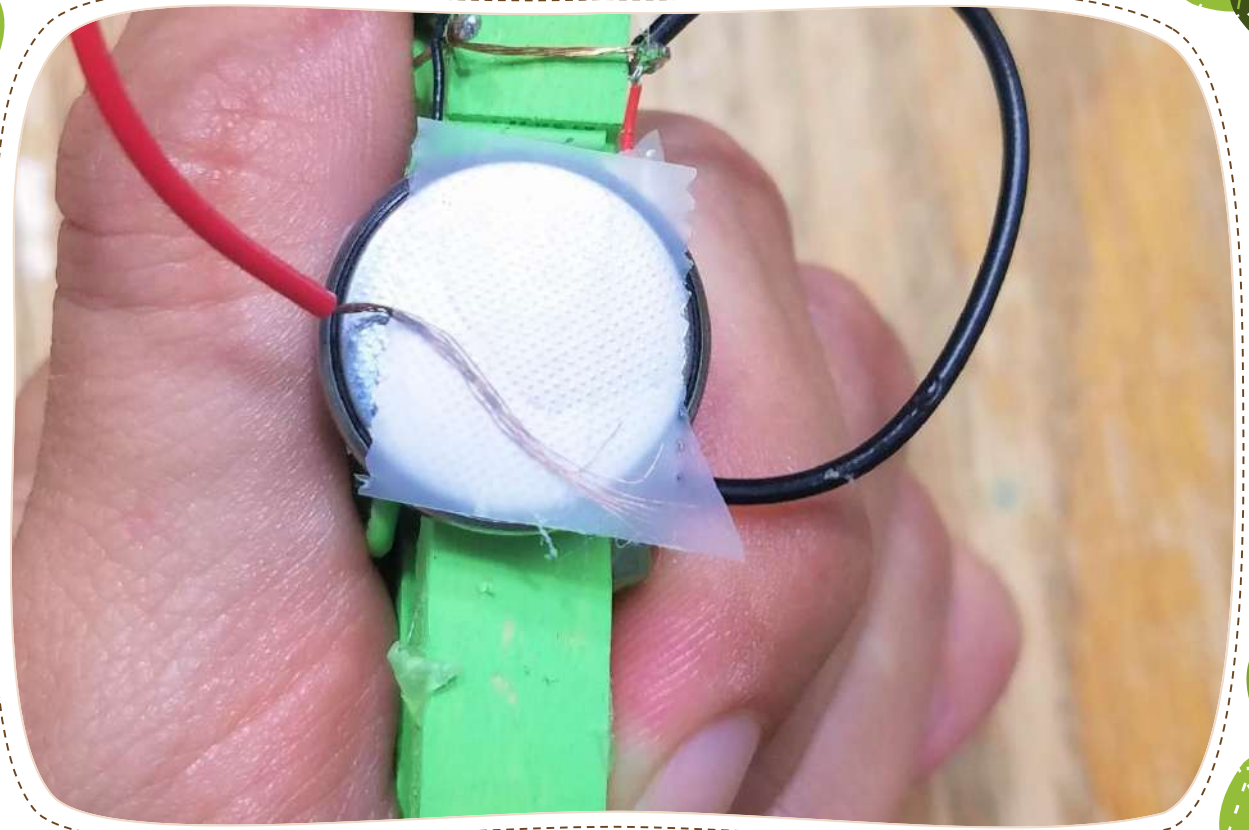
Step 11:

- Tape the end of the black wire to the **side** of the negative face of the battery.

Step 12:

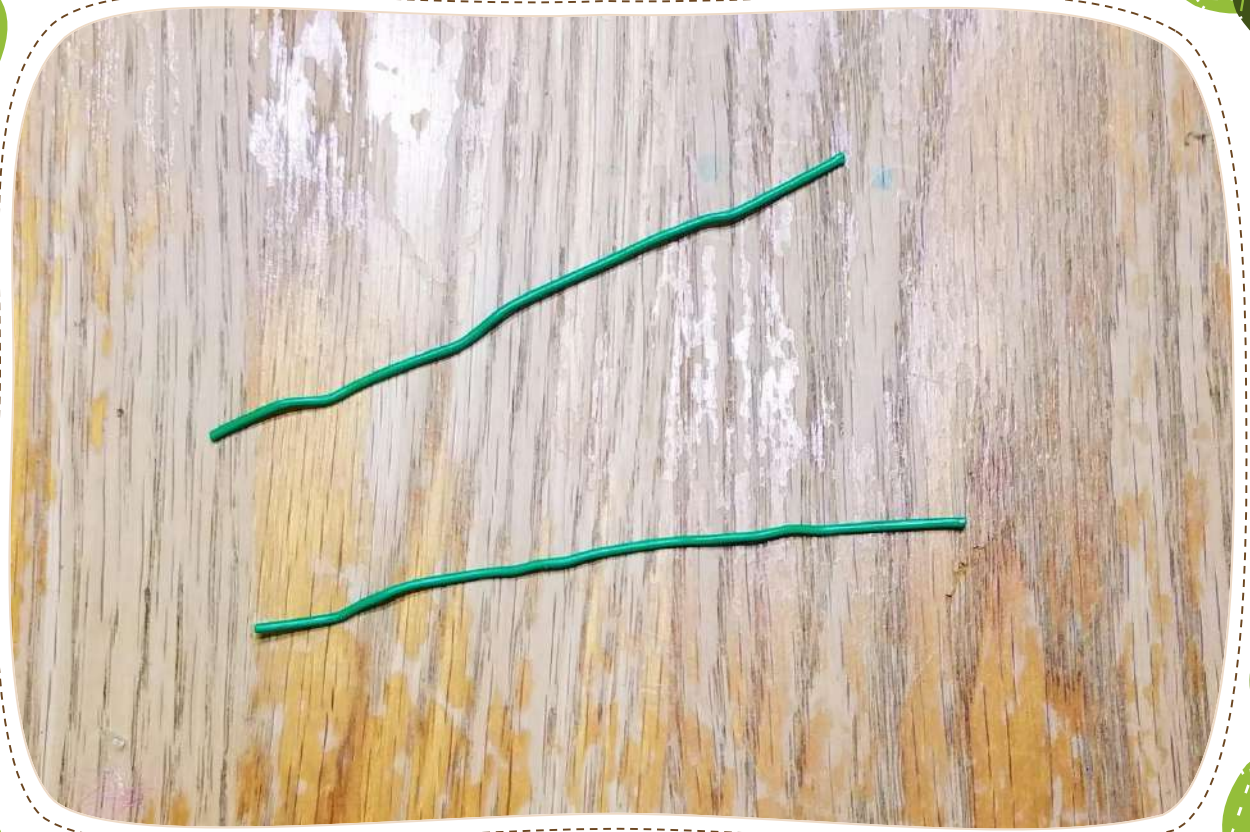
- Place the end of the black wire onto a small piece of double-sided tape. Secure the tape to bottom of the bug with the wire between the battery and the clothes pin

Step 13:



- Take a piece of tape over the end of the red wire and place it over the exposed face of the battery
- The motor will vibrate and the LEDs will turn on. To turn off, simply remove the tape and wire from the battery

Step 14:



- Straighten out two small paper clips

Step 15:

- Wrap the paperclips around the bottom of the front and back of the clothes pin.
- Twist where the clips come in contact with the pin.
- Orient the legs slightly backward and glue in place

Step 16:

Decorate your RoboBug!