

# Wobble Bot

## How to Build It:

### Materials:

- |  |   |  |
|--|---|--|
| <input type="checkbox"/> Pop can                           | <input type="checkbox"/> 1.5V motor                                     | <input type="checkbox"/> Hot glue                                  |
| <input type="checkbox"/> X-acto knife                      | <input type="checkbox"/> wire - blue, black, green Christmas light wire | <input type="checkbox"/> Soldering irons and solder                |
| <input type="checkbox"/> Scissors                          | <input type="checkbox"/> AA batteries and holder                        | <input type="checkbox"/> Electrical tape                           |
| <input type="checkbox"/> Drill - 1/4" and 5/32" drill bits | <input type="checkbox"/> Paper clips                                    | <input type="checkbox"/> Arts and crafts supplies like googly eyes |
| <input type="checkbox"/> 10mm LED                          |   |  |

### Procedure:

1. Mark the holes so there are two on one side, and three on the bottom of the can in a triangle shape so that the base of the triangle matches up with the holes on the side of the can.
2. Drill holes
3. Cut off the top of the pop can and sand the edges.
4. Solder a Blue wire onto the long leg of the LED light.
5. Solder a Black wire onto the short leg of the LED light.
6. Put both legs of the LED with the blue and black wires through the big hole in the middle of can and hot glue them in place making sure the legs of the LED do not touch.
7. Solder a Blue wire onto the side of the motor with the red dot.
8. Solder the Black wire onto the other side of the motor.
9. Solder together the Blue wire from the LED and motor.
10. Solder together the Black wire from the LED and motor.
11. Solder a Green antenna wire to where the two blue wires are connected. Put a piece of tape over this spot where the wires connect.
12. Solder a Green antenna wire to the Red wire on the battery pack. Put a piece of tape over this spot where the wires connect.
13. Put the battery pack on the can by poking the black wire and the red wire with the antenna on it through the holes in the side of the can.
14. Solder the Black battery pack wire to where the black wires are connected. Put a piece of tape over this spot where the wires connect.
15. Pull the Green antenna wires through the holes for antenna on the front of the can.
16. Hot glue motor and antenna in place.
17. Attach glue stick nub to end of motor
18. Hot glue battery pack onto top of can and add batteries to the WobbleBot to test if it works.
19. Pull wires back into can to make the Wobble Bot look a little cleaner.
20. Decorate the WobbleBot, add wings, eyes, and legs



## How it Works:

The WobbleBot uses a simple parallel circuit to power an LED and a motor. The two circuits are made out of one blue and one black wire each. The blue wires are connected at the same point to the positive battery pack wire while the black wires connect at the same spot to the antenna. The other antenna is connect to the negative battery pack wire. The antennae act like a switch in the WobbleBot. When they are disconnected, the power stays off because the circuit is open, but when the antennae are connected, the light turns on and the motor spins. The glue stick nub stuck on the motor acts to offset the weight of the motor which makes the motor wobble.

The low voltage DC motor and LED both operate on only 3V of electricity that we get from the AA batteries. If we had the motor and LED connected in a series circuit,we wouldn't get enough electricity to both parts to get them both to work!

## Experiment!

Try changing the size or placement of the glue stick nub on the motor. What happens?