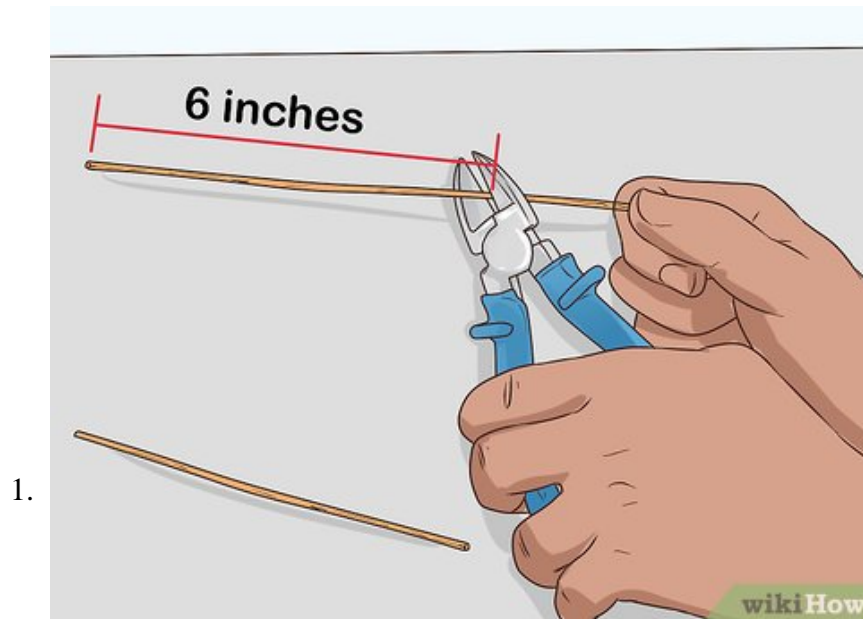


# How to Build a Model of a Swarm Robot

Interested in robotics and model-making? Follow these steps to build your own model of a swarm robot. They may not demonstrate the kind of 'swarm intelligence' you'd hope to see in a real swarm robotics project,<https://en.wikipedia.org/w...>

Part 1 of 3:

## Making a Single Swarm Robot



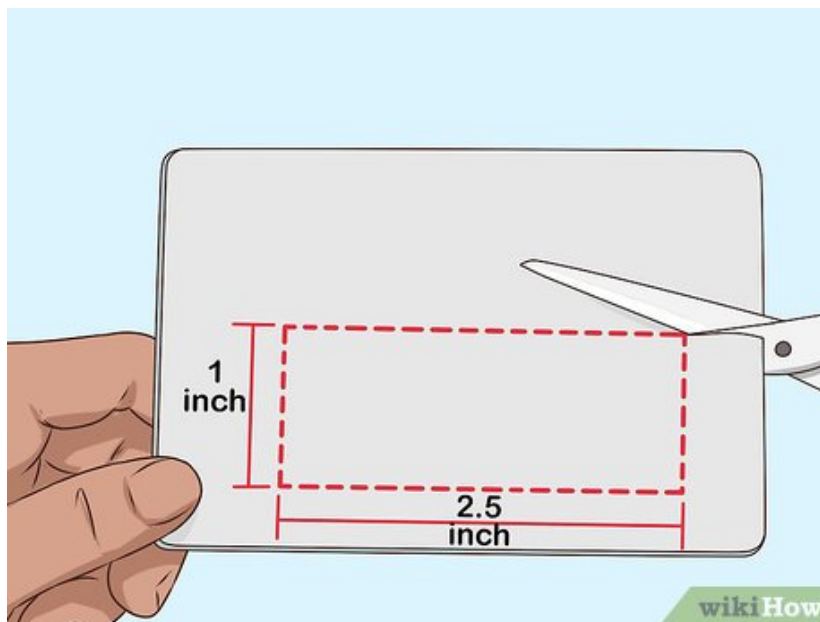
**Cut two 4?6 inches (?15 cm) pieces of 16 - 24 gauge wire.** Any kind of wire you have available is fine. Some options are using a wire hanger, annealed wire, galvanized, electrical copper wire, or even pipe cleaners.

2.



**Bend both wire pieces at the middle; one shaped like a U and the other shaped like an M.** These will be your swarm robot's legs.

3.



**Cut a 1 inch by 2.5 inch thin piece of plastic, wood, or aluminum.** This will be the body of your swarm robot.

4.

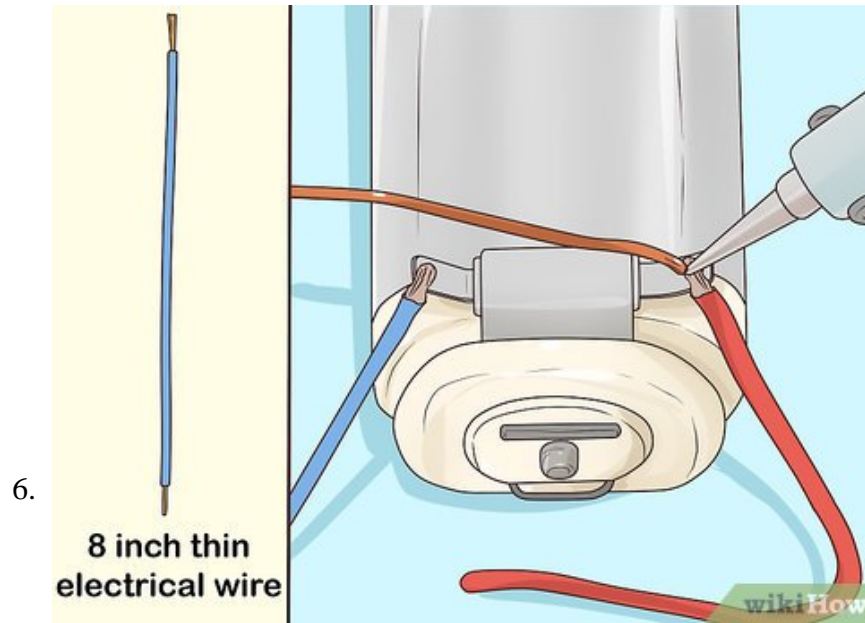


**Get a small DC powered universal brush motor.** You can find them and salvage from small electrical toys, purchase online, or from your local hobby store. They are some of the cheapest, most simple and easiest to power and run. They can run from as little as 1.5 volts up to 12 volts depending on their size.

5.



**Solder one terminal of the motor to a 3 inch thin electrical wire.** For this build it won't matter which side you pick since universal motors run on either polarity (+ -) or (- +) and current charge (A/C. or D/C).

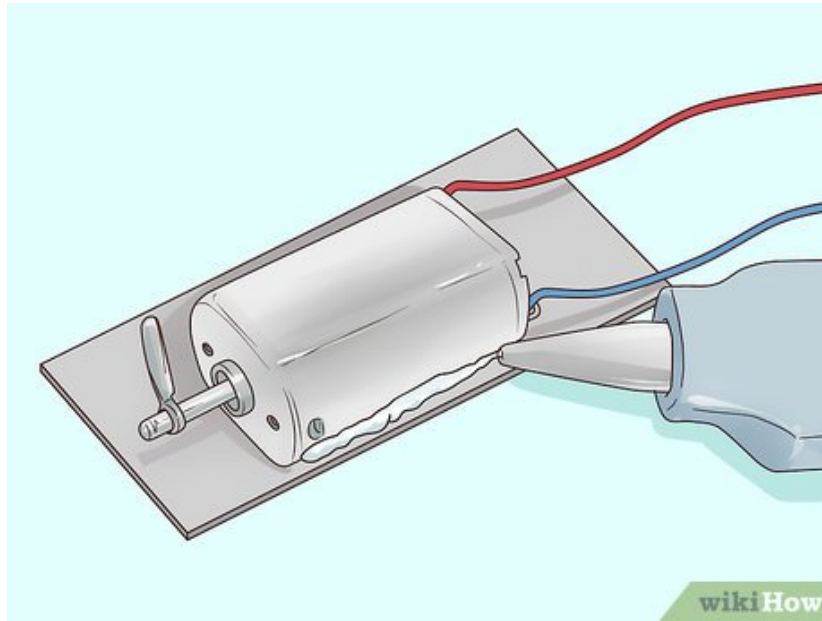


**Solder a 6–8 inch (15.2–20.3 cm) thin electrical wire to the other end of the motor.**



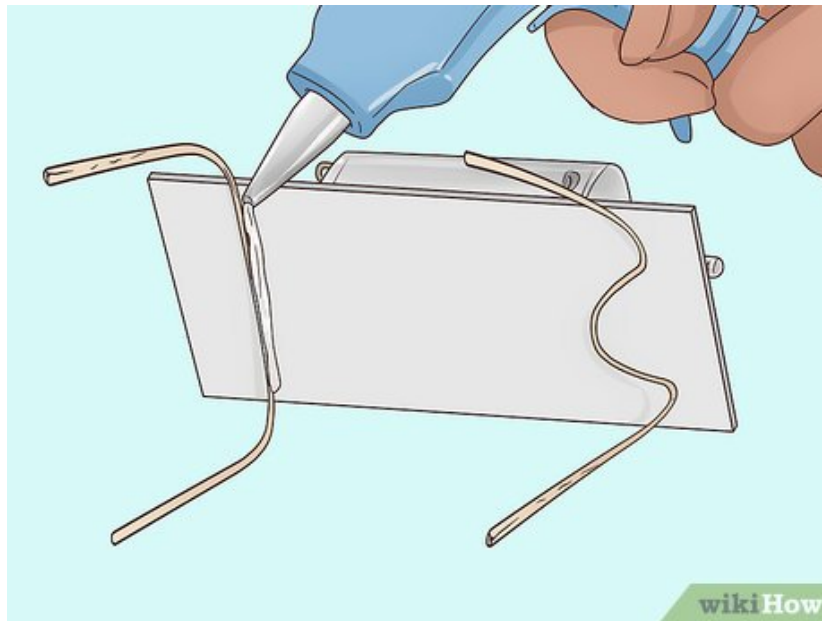
**If you're able to find a small switch, solder one end of the switch terminal to one of the electrical wires on the motor.** This is an option if you want to turn on and off your robot without having to pull the cable, battery off.

8.

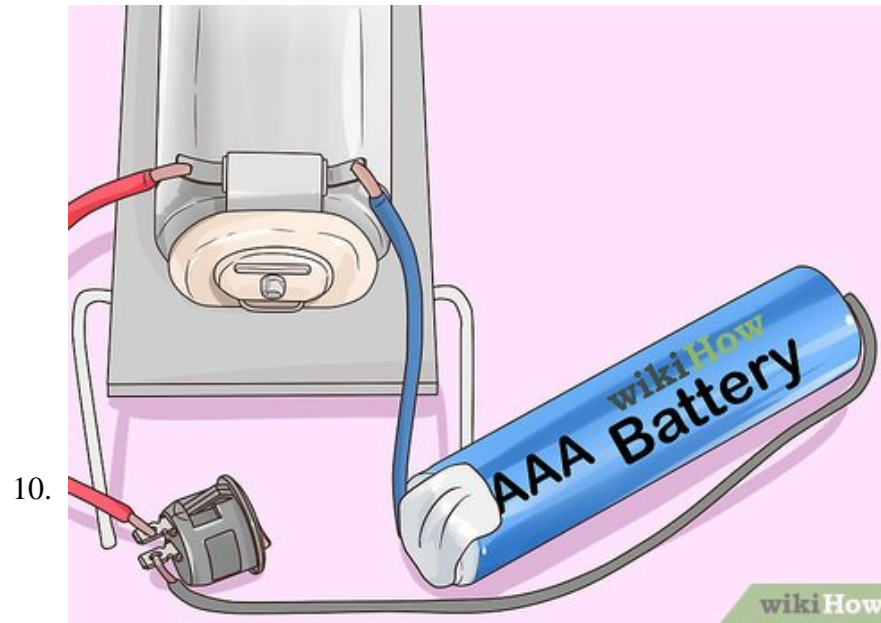


**Attach the motor to the body of the swarm robot with a hot glue gun.** Attach or glue a single blade propeller to the motor shaft. This will cause the motor to run out of balance and shake and vibrate the entire frame of the robot.

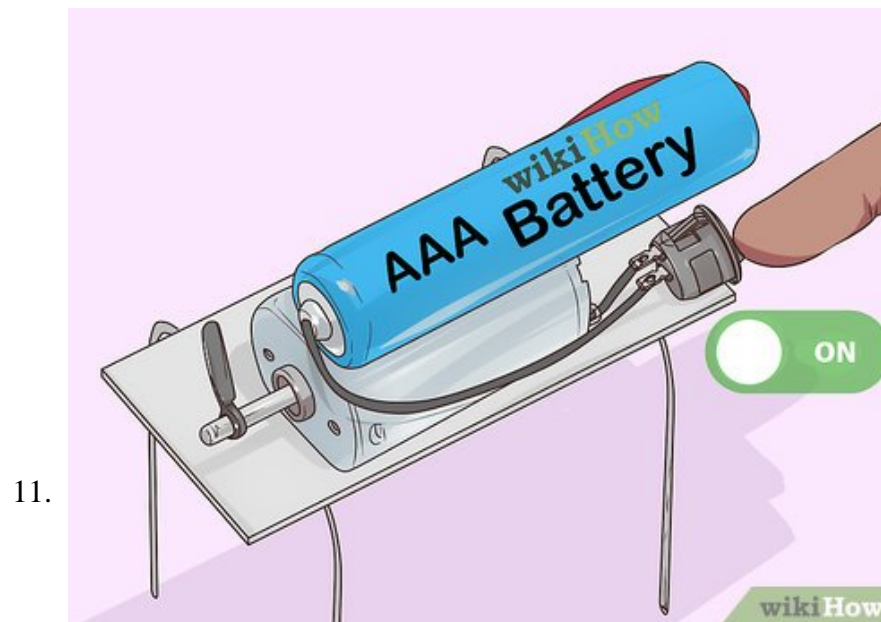
9.



**Glue the wire legs to the body.**



**Tape one wire from the motor and the other end/switch) to a AAA battery.**



**Turn the swarm robot on and place it down on a flat surface.**

12.



**Watch it shake around and roll like a swarming ant or termite.**

Part 2 of 3:

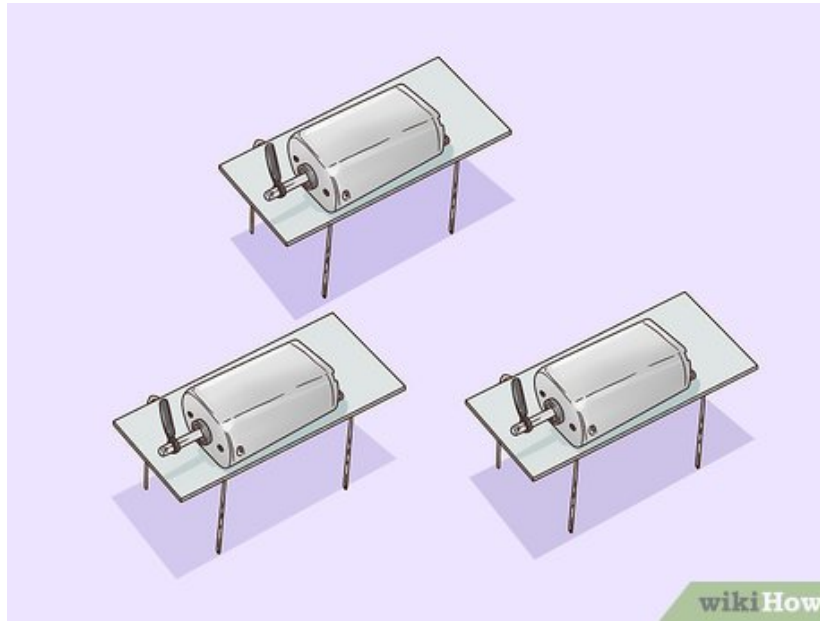
## **Making a Swarm of Robots**

1.



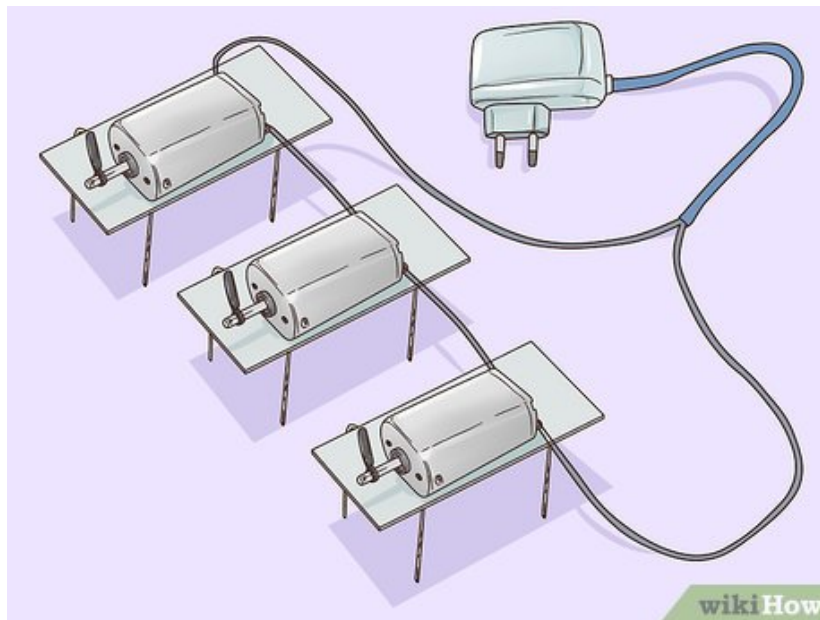
**Find as many motors as you can and build a robot for each one.**

2.



**Repeat the building process and connect all the robots in series.**

3.

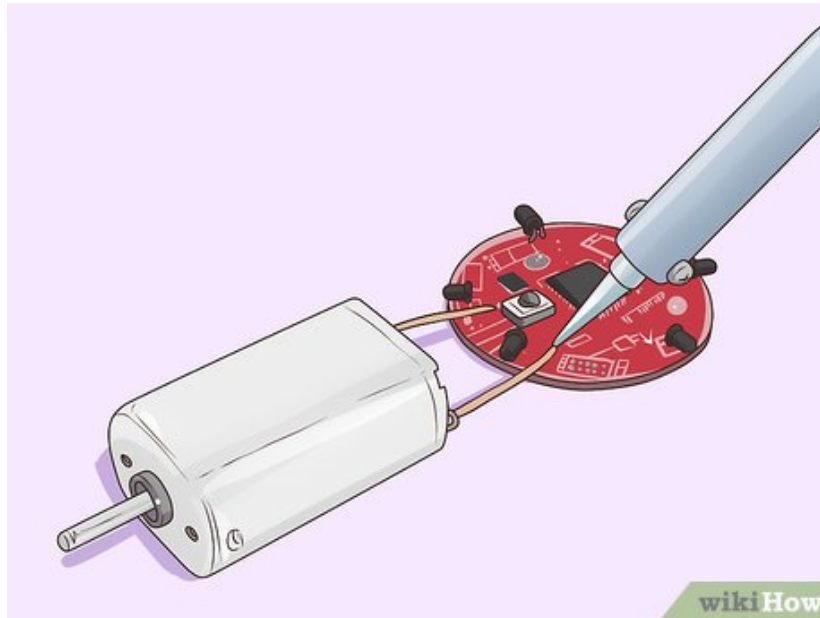


**Use a cell phone charger to power them all at once.**

Part 3 of 3:

## **Making An advanced Swarm of Robots**

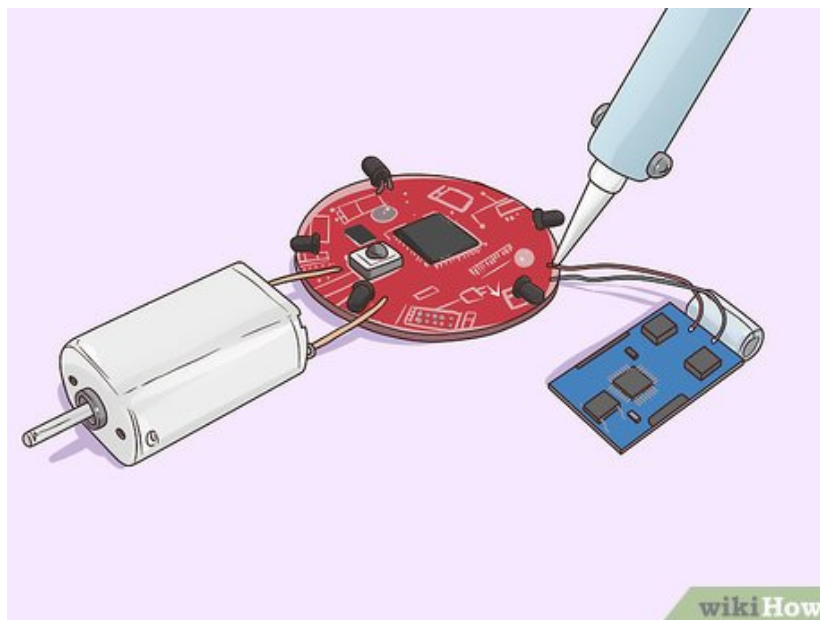
1.



**Solder a Infrared receiver diode to a small Servomotor and an Electronic controlled board.** You can find these kind of boards from several open source Hardware and Open source Software available online to program each mini receiver boards to your *Swarm Bots*..

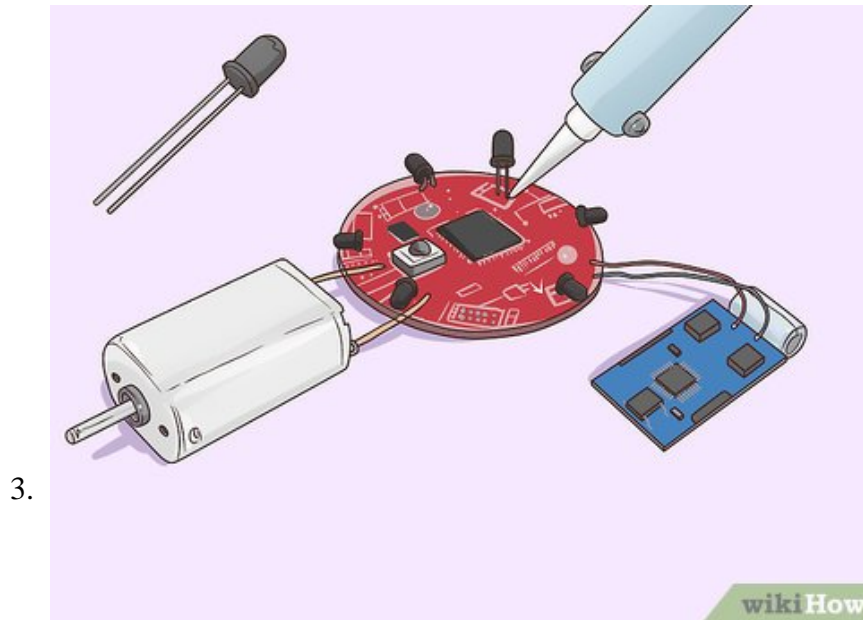
1. You can find any size or power capacity of suitable motor for your Project. Some surprisingly powerful miniature motors on cell phone or pager vibrators is a good way to Up-cycle all those old cell phones stashed in a box on the attic or garage.

2.



**Program each robot caring a E.S.C (electronic Speed Controller) with a E.S.C. programing card.** These kind of cards have adapters with fittings to the servo, Brush-less or stepper motors, a power source and a connection to a transmitter.

1. A programming card has a connection that fits the E.S.C's transmitter input adapter and a USB to program language and Code Instructions to the *Swarm Bots*.

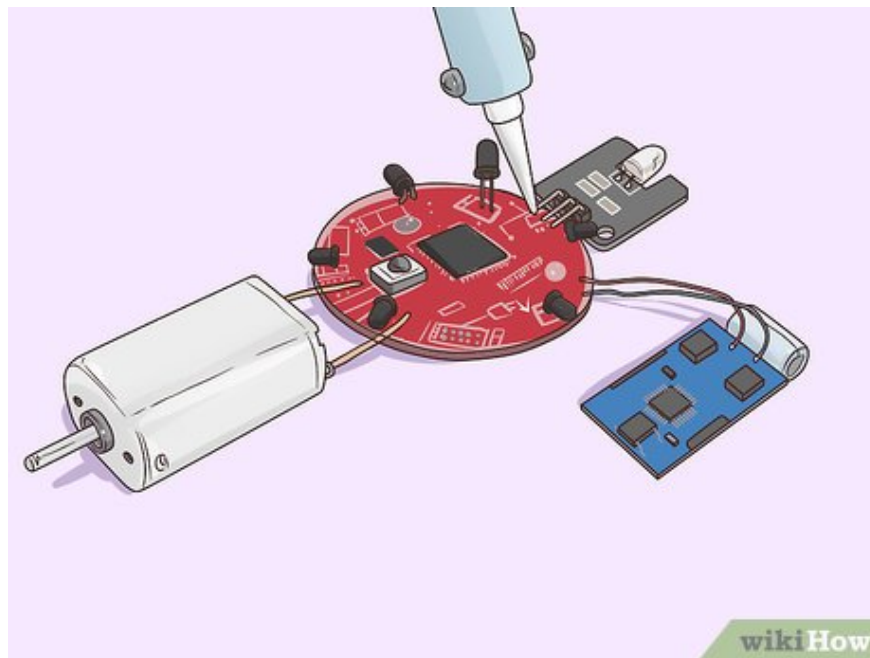


**Solder a set of color coded LCD's to the board.** You can program your robots to light up a certain color and even behave or move for each different signals you're able to program and command your swarm.

4. **Solder an infrared transmitter the same way you connected and programmed an LCD.** Now each Swarm-Bot will be capable of communicating with any other robot near enough or within sight of the infrared.

== References ==

1. [https://en.wikipedia.org/wiki/Swarm\\_robotics](https://en.wikipedia.org/wiki/Swarm_robotics)



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