

# ProtoBot Assembly Guide



## Stuff you need:

- A ProtoBot kit
  - 3D printed base part
  - 2 x 3D printed Antenna parts
  - 2 x Bump sensors
  - 2 x Motors
  - 2 x Line sensors
  - Control board
  - 9V Battery clip
- A hot glue gun (Hi-Temp is preferable)
- A 9V battery
- A work surface that can get glue on it

**Tip! Use a piece of old scrap paper for a work surface.**

## Step 1

- Plug in your hot glue gun, and set it up on your work surface.
- Wait for it to heat up

## Step 2

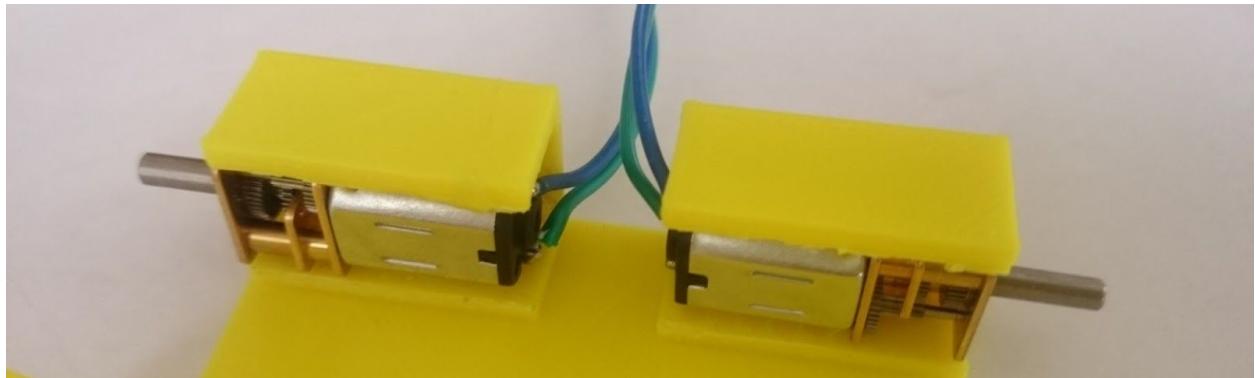


- Put a small dab of glue in one of the motor mounts on the base, as shown in the picture



- Insert the motor, making sure not to get any hot glue in the gearbox

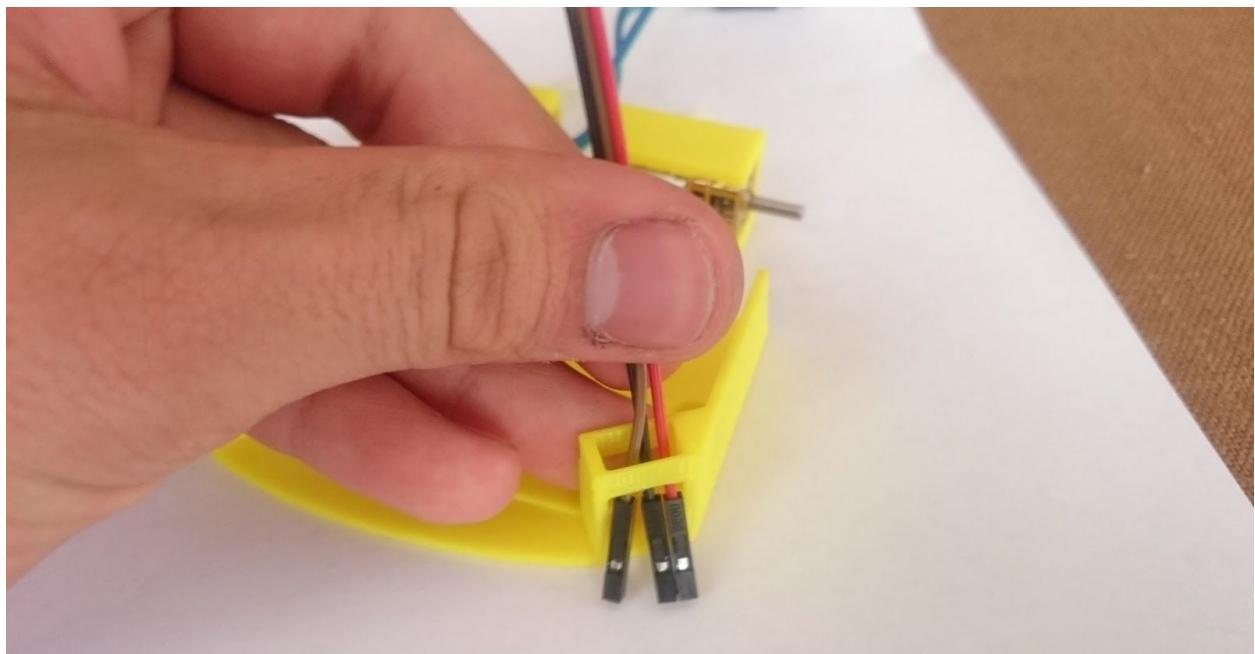
**Warning! Don't get glue in the gearboxes, otherwise your motors won't turn!**



- Repeat for the other side and motor

**Tip! Put hot glue on the places where the wires connect to the motors to help ensure they don't break off.**

## Step 2



- Take a line sensor, and put the wires, connectors first, through the sensor mount



- Firmly seat the sensor in the sensor mount

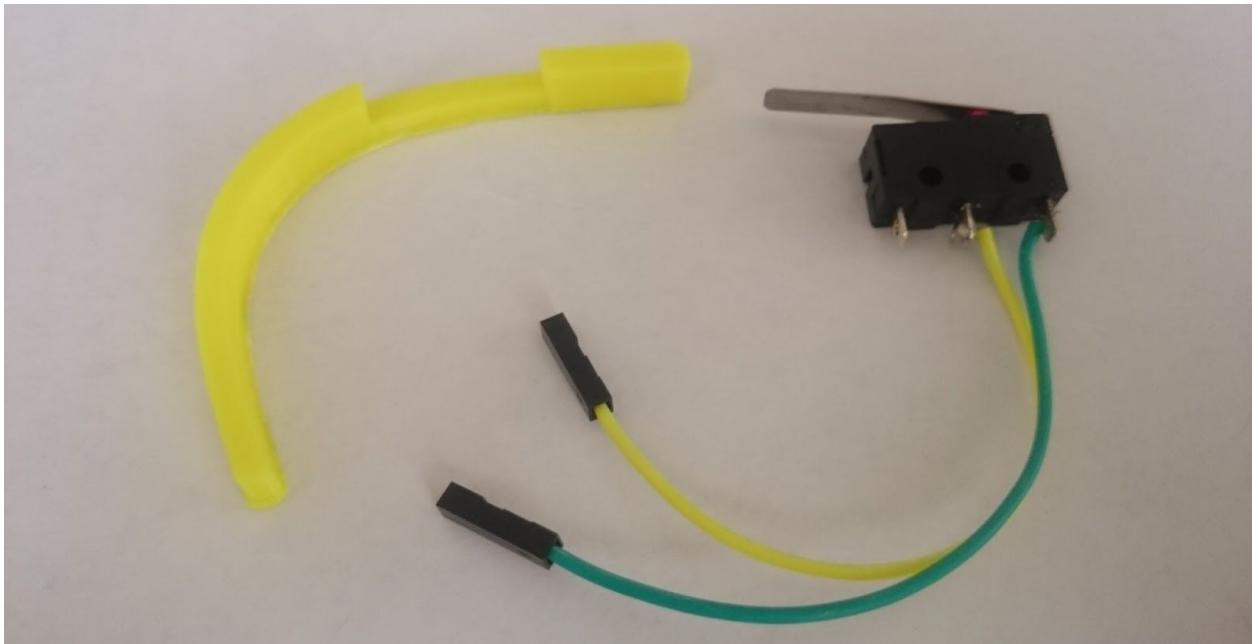
**Tip! Mount the sensor with the blue part towards the front of the 'bot for a faster edge sensing time!**



- Repeat for the other line sensor

**Tip! If the sensors feel loose, you can put a dab of hot glue under them. Just don't get any on top!**

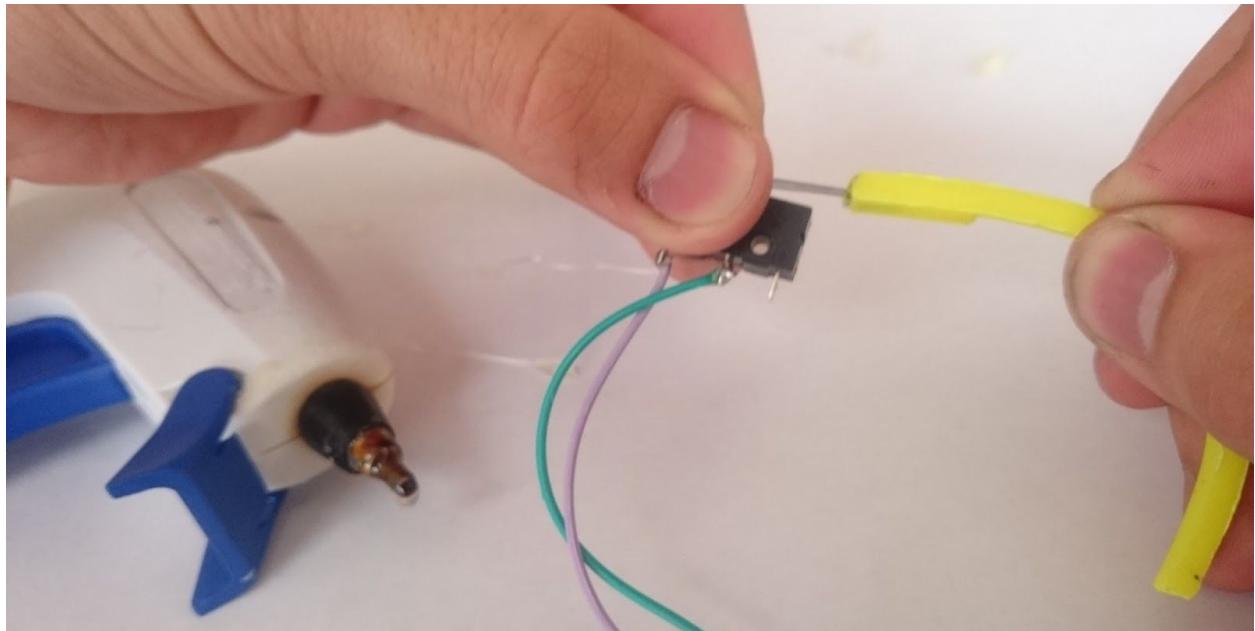
## Step 3



- Find your Bump Sensors, and 3D printed Antenna Parts

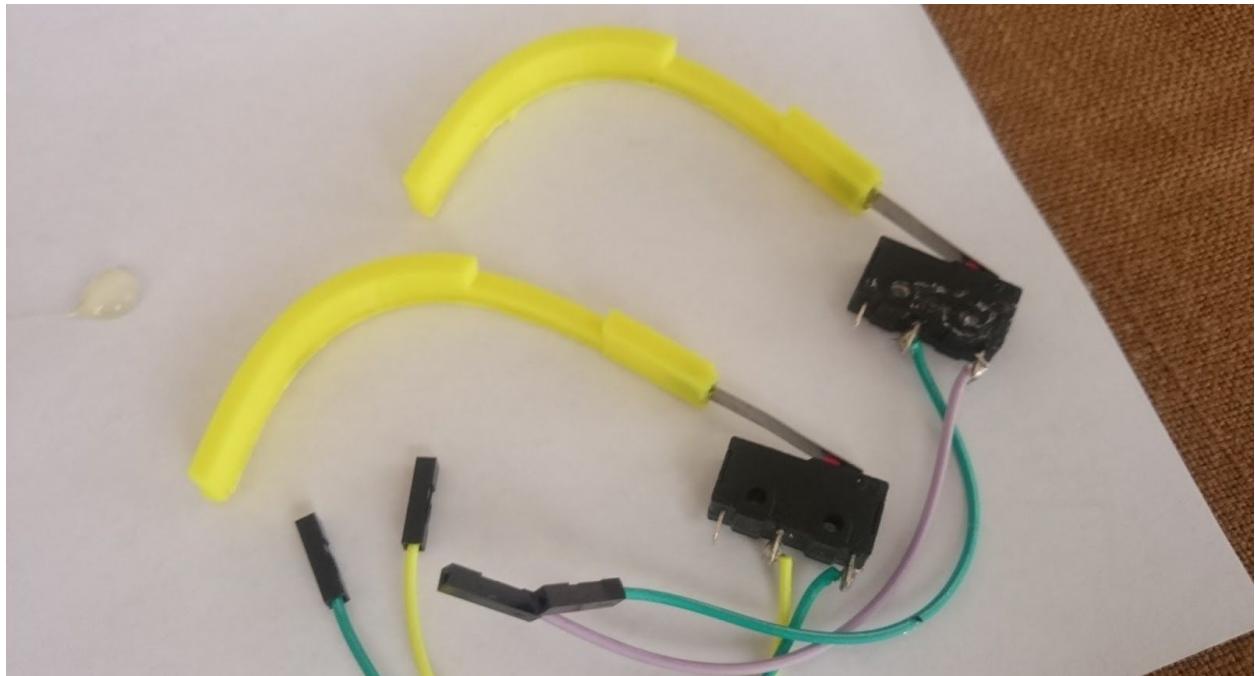


- Put a dab of hot glue on the end of an Antenna Part



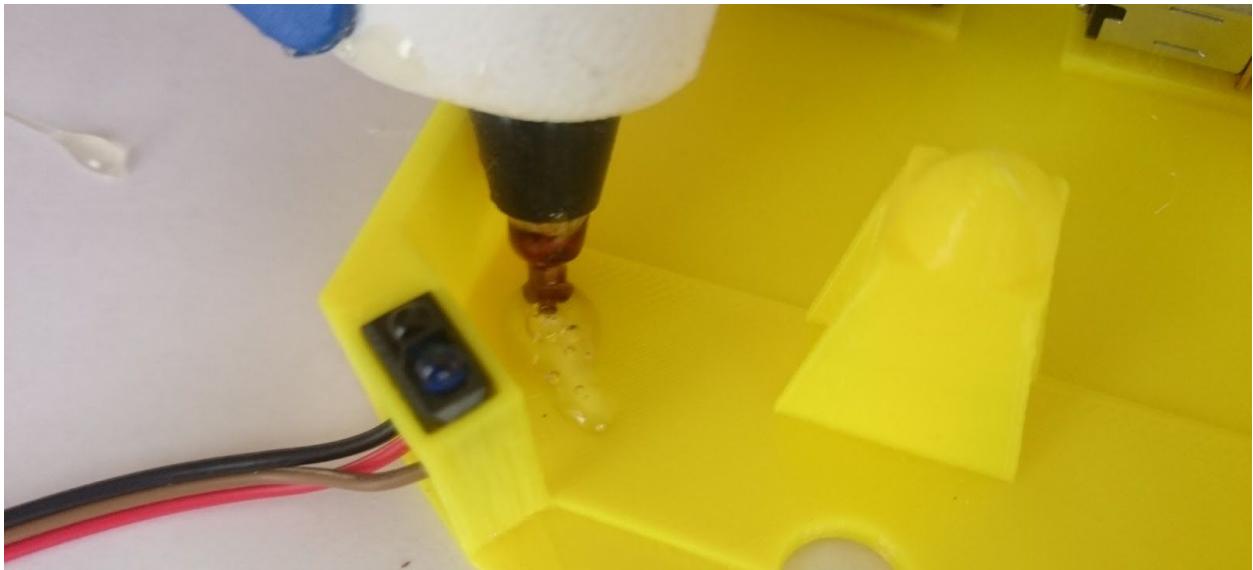
- Push the Antenna Part onto a Bump Sensor, as shown in the picture

**Warning! Don't push it on too far, or it won't work properly later on.**

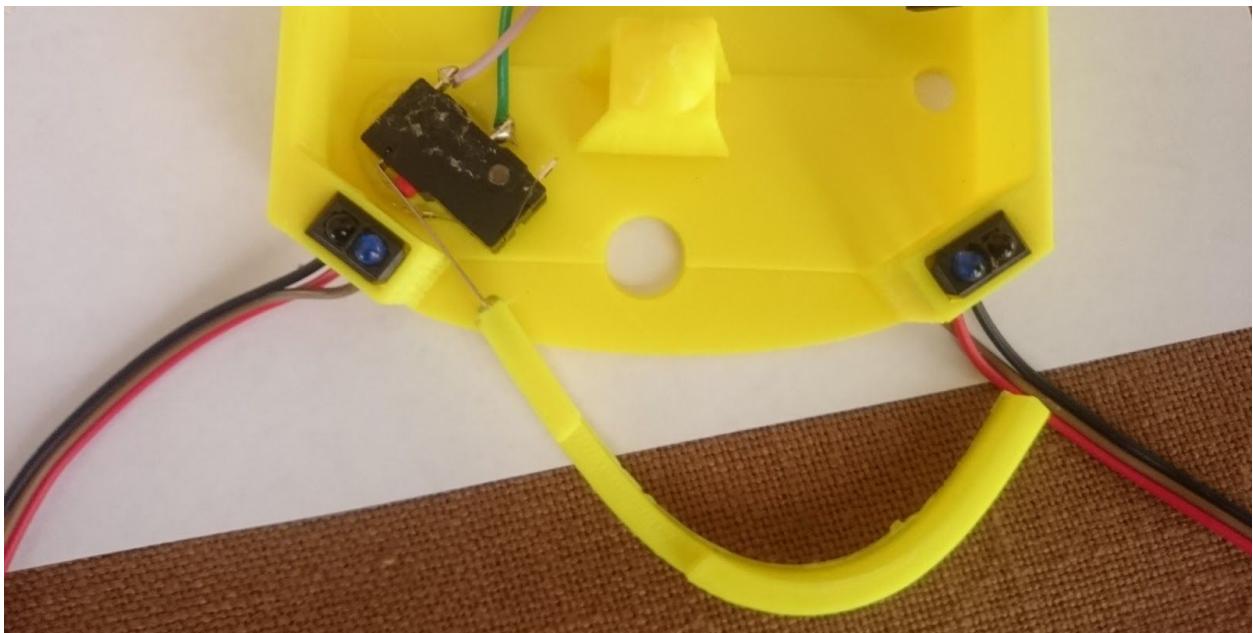


- Repeat for the other Antenna Part and Bump Sensor

## Step 4



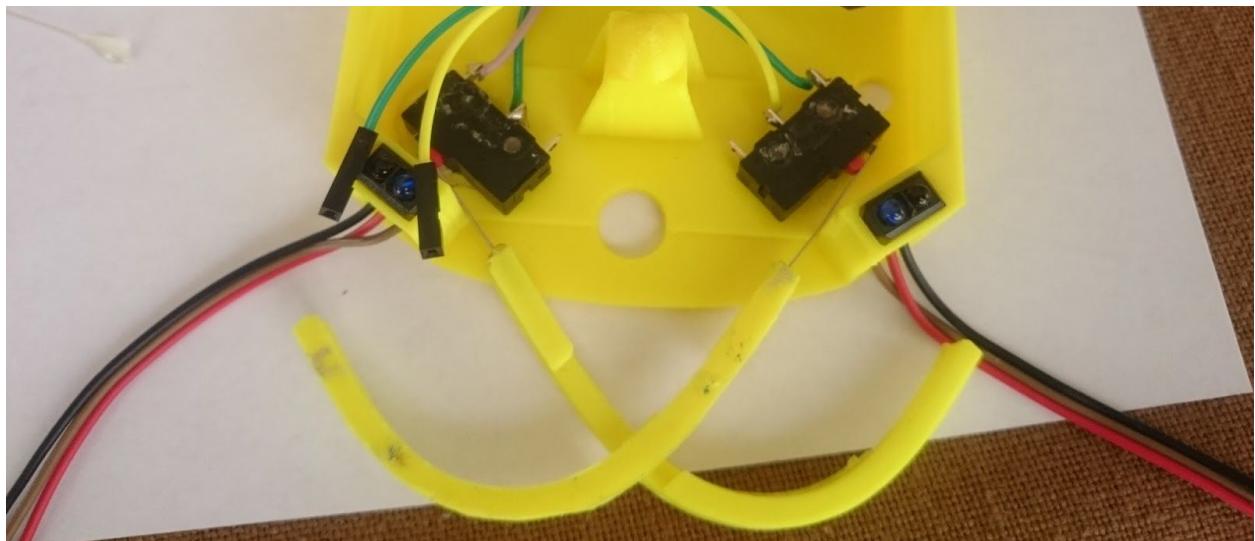
- Put a small dab of hot glue as shown in the picture



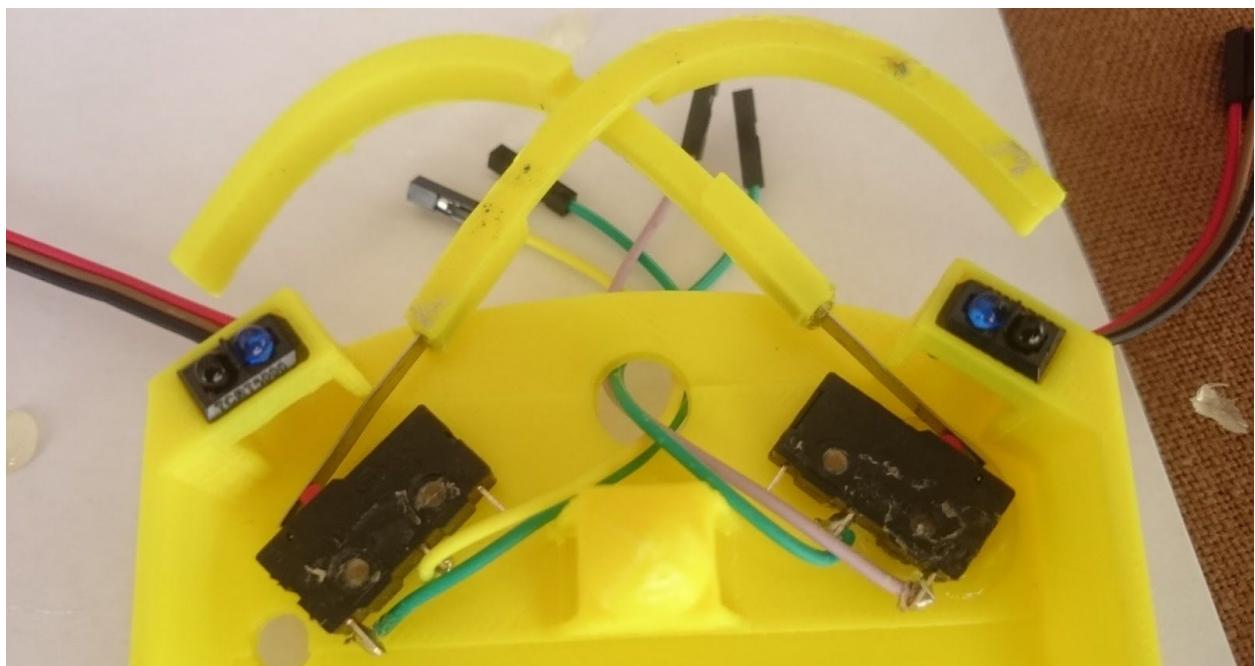
- Place a touch sensor as shown in the picture

**Warning! Try not to get hot glue on the lever part of the sensor, or it might not**

**work later on.**

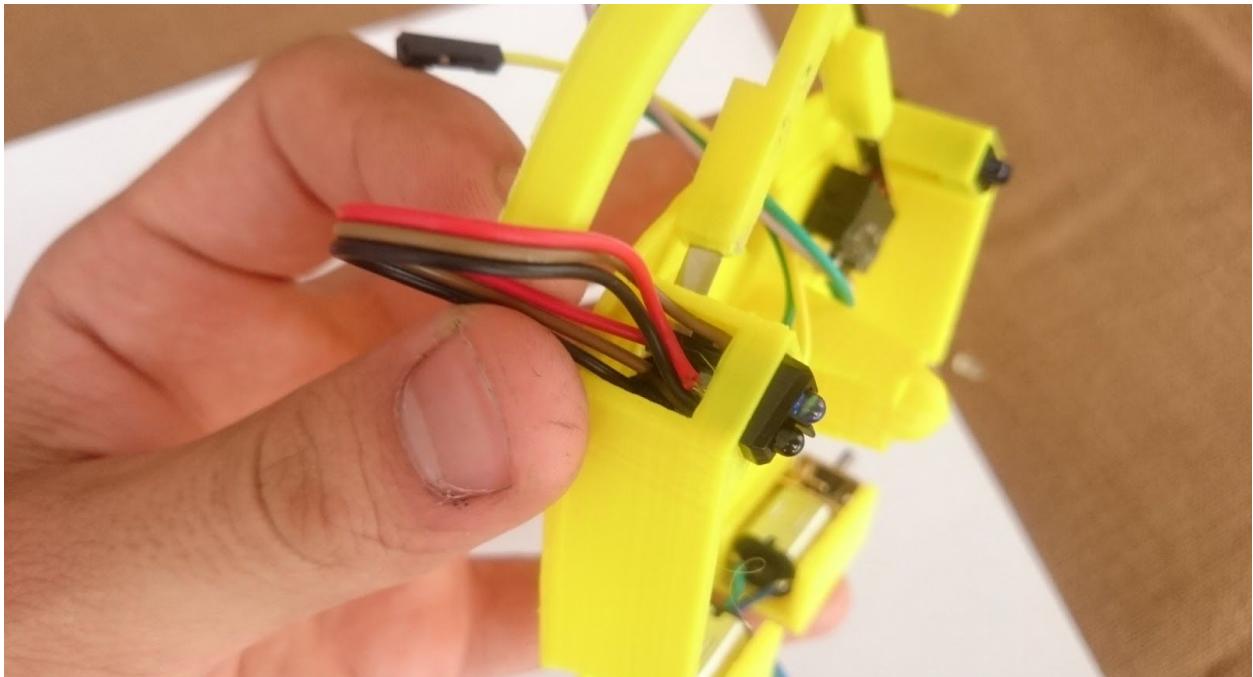


- Repeat on the other side of the base, with the other Bump Sensor

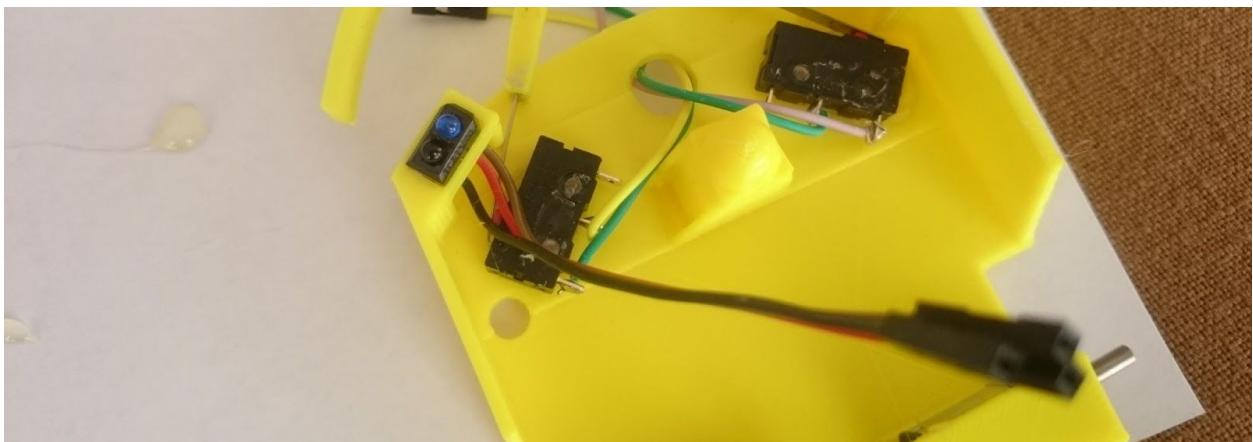


- Take the wires from the Bump Sensors, and put them through the hole in the front of the 'Bot base

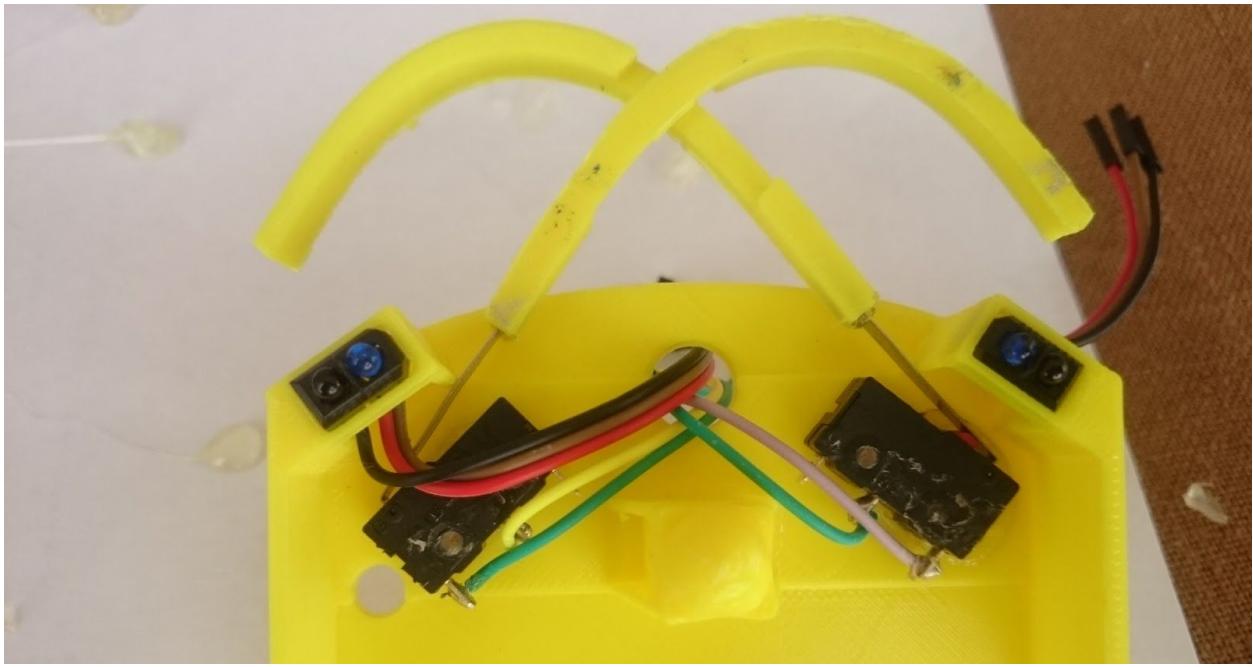
## Step 5



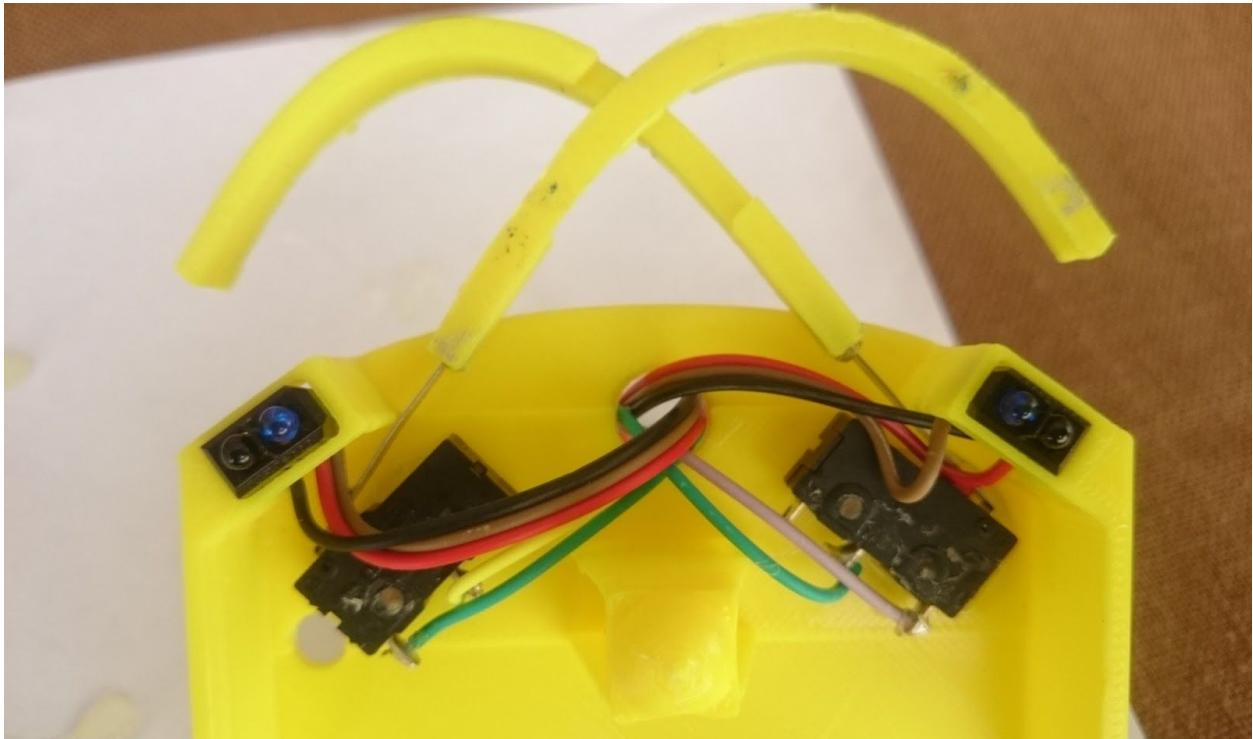
- Take the ends of the wires of a Line Sensor, and put them through the hole in the Line Sensor mount



- Pull them though completely

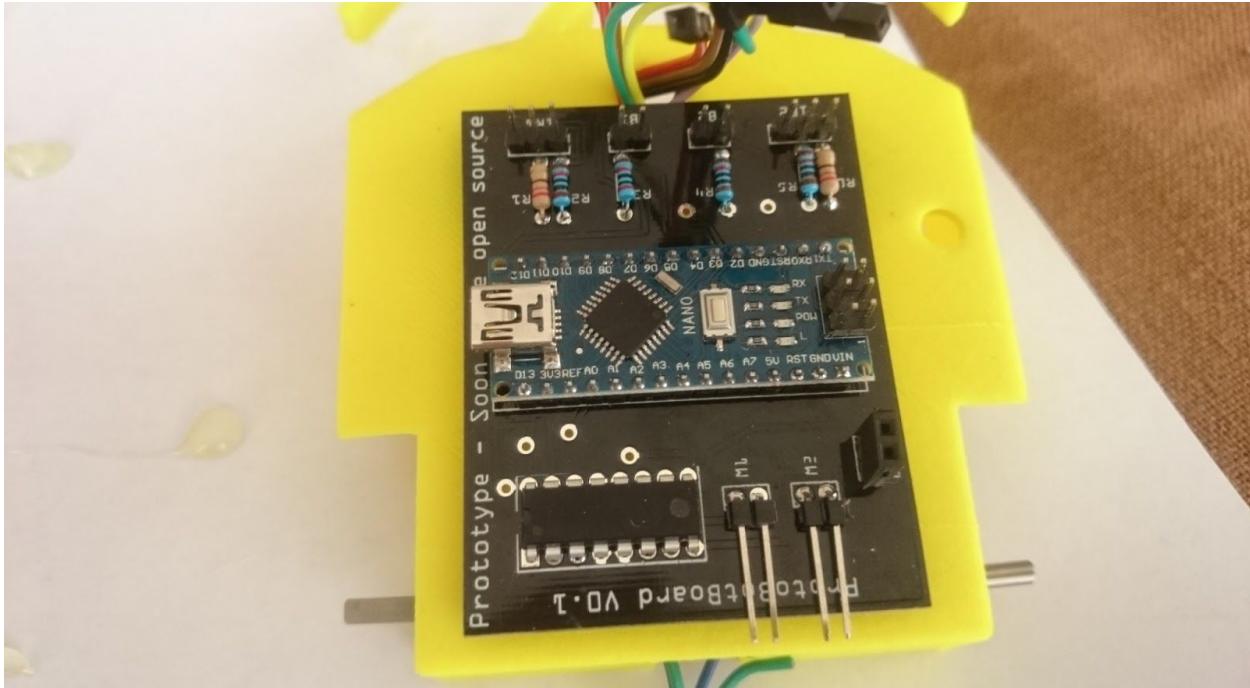


- Put the wires through the hole in the front of the 'Bot Base'

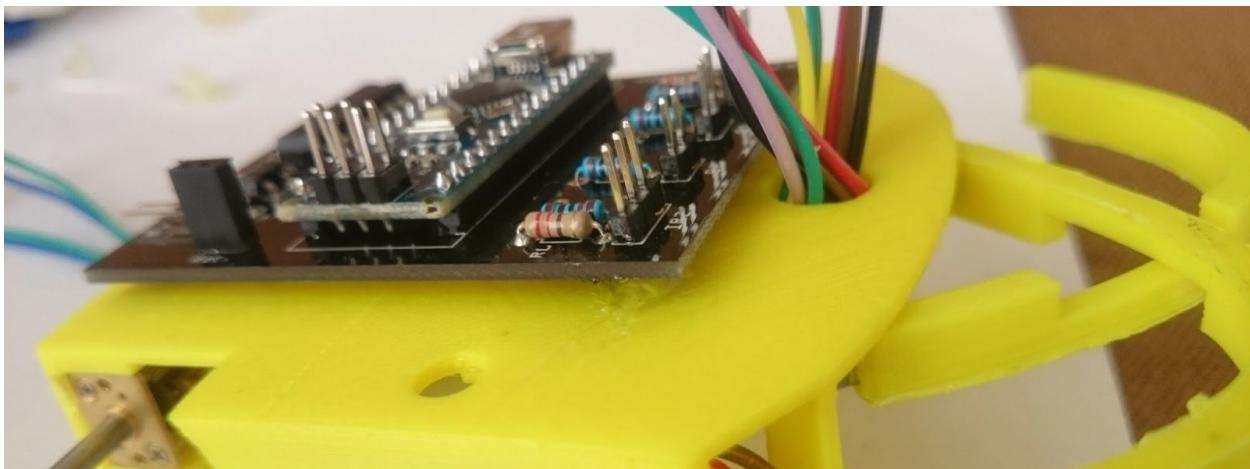


- Repeat for the other Line Sensor

## Step 6

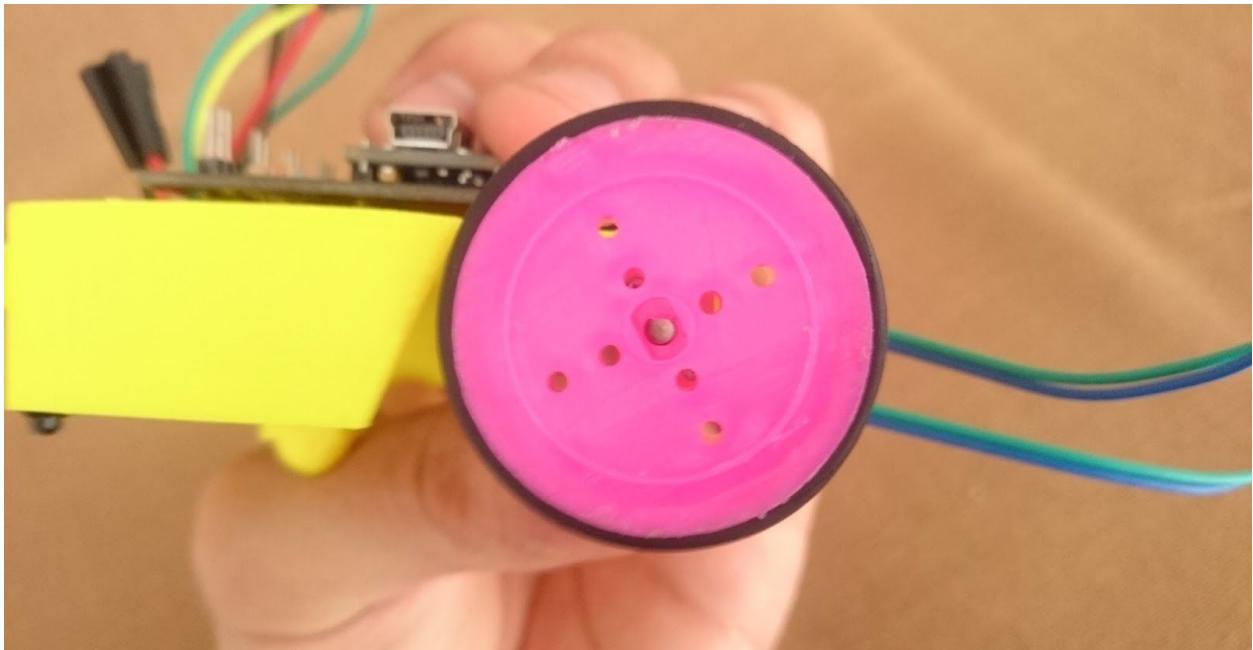


- Take the Control Board, and align it on the 'Bot Base as shown in the picture

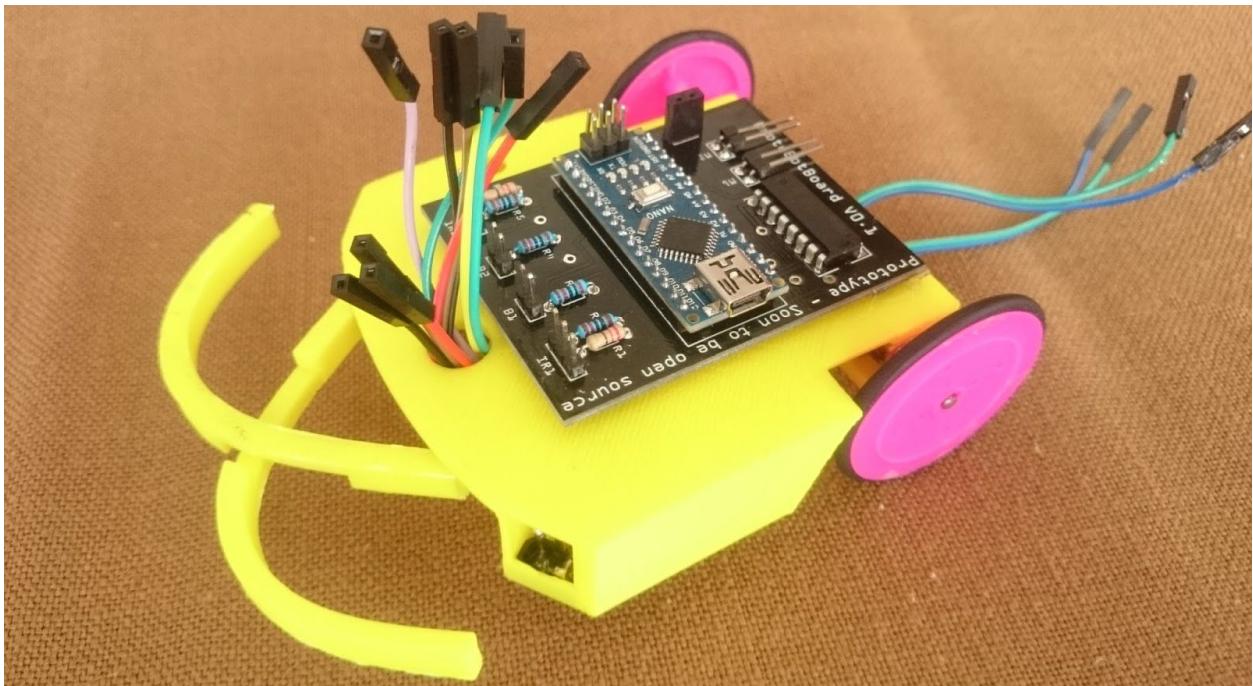


- Put a small dab of Hot Glue under each corner of the Control Board

## Step 7

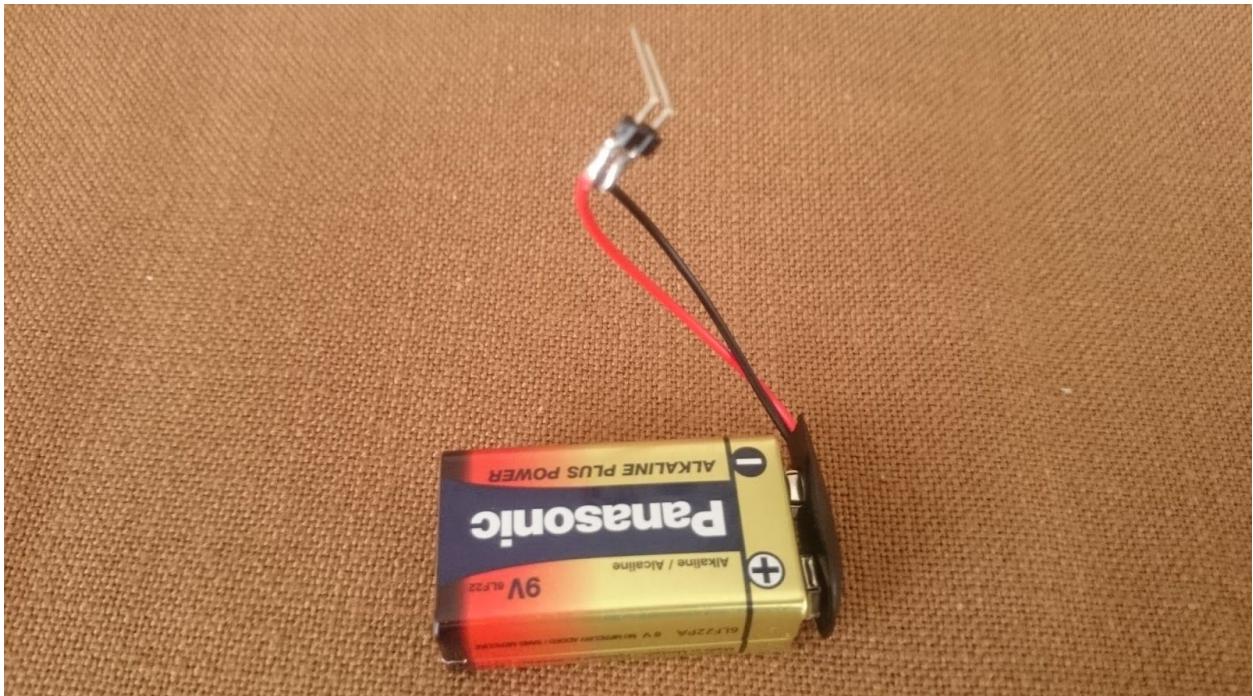


- Take a wheel, and line up the flat edge on the hole with the flat edge on the motor.
- Press the wheel on, being careful not to push the motor out of the motor mount.



- Repeat for the other Wheel and Motor

## Step 8



- Connect the 9V Battery Clip to the 9V Battery

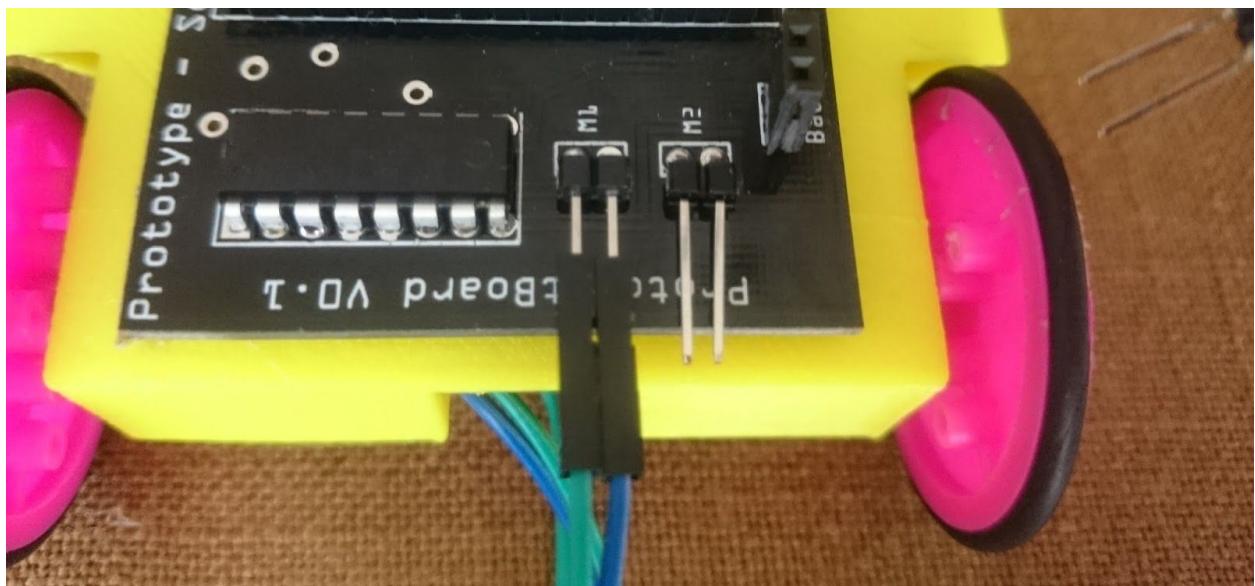


- Put a small amount of Hot Glue on the underside of the 'Bot Base, as shown



- Press the 9V Battery in place, making sure that the end with the wire is towards the side of the 'Bot Base with the small hole in it.

## Step 9



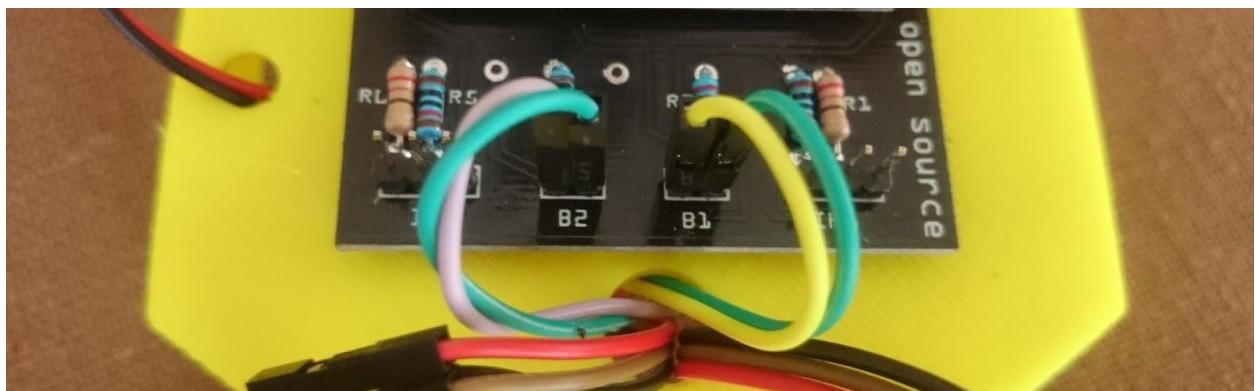
- Take the wires from the Left Motor, and plug them into the connector labeled either "ML" or "M1"



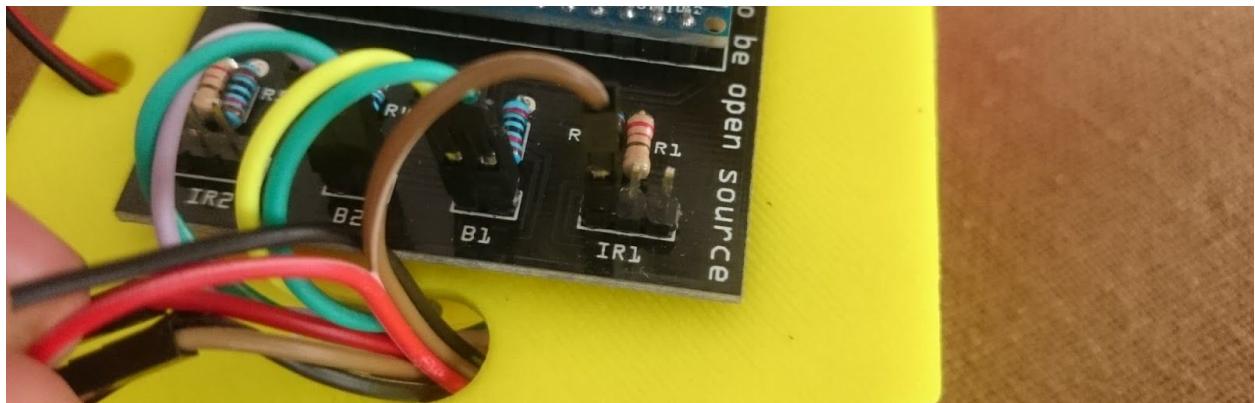
- Take the wires from the Right Motor, and plug them into the connector labeled either “MR” or “M2”



- Take the wires from the left Bump Sensor, and plug them into the connector labeled either “BL” or “B1”



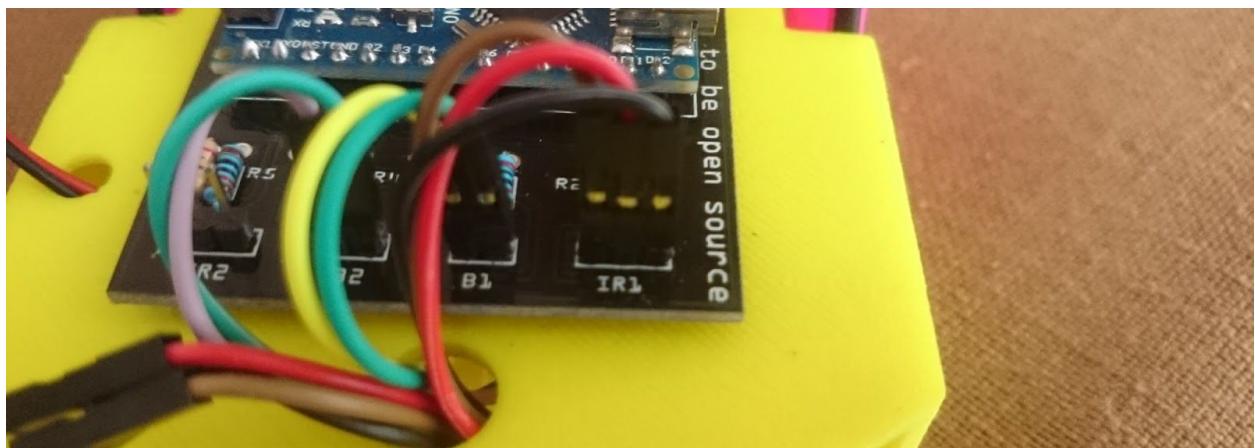
- Take the wires from the right Bump Sensor, and plug them into the connector labelled either “BR” or “B1”



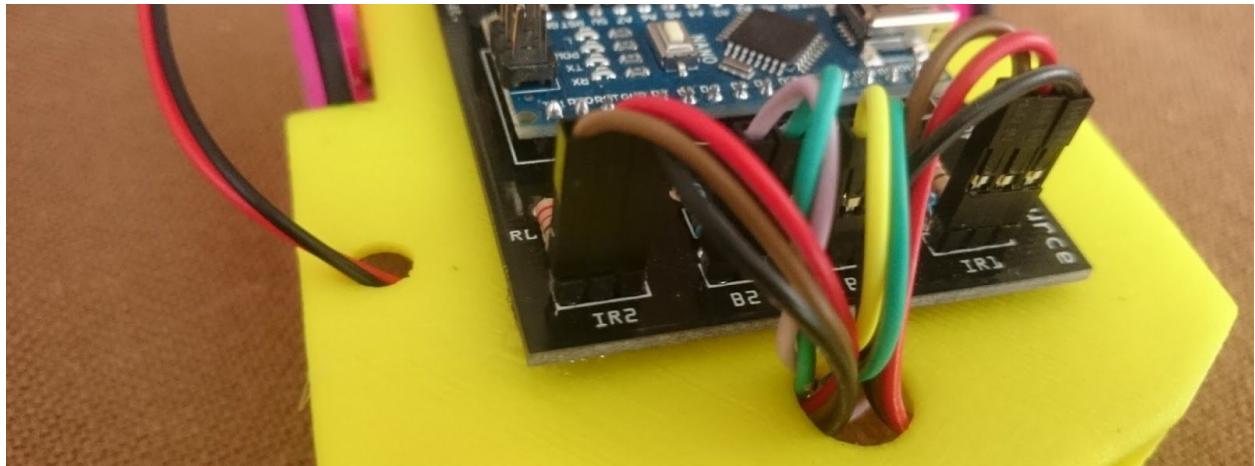
- Take the end wire from the left Line Sensor, and plug it into the end connector pin of the connector labelled either “IRL” or “IR1”, as shown.



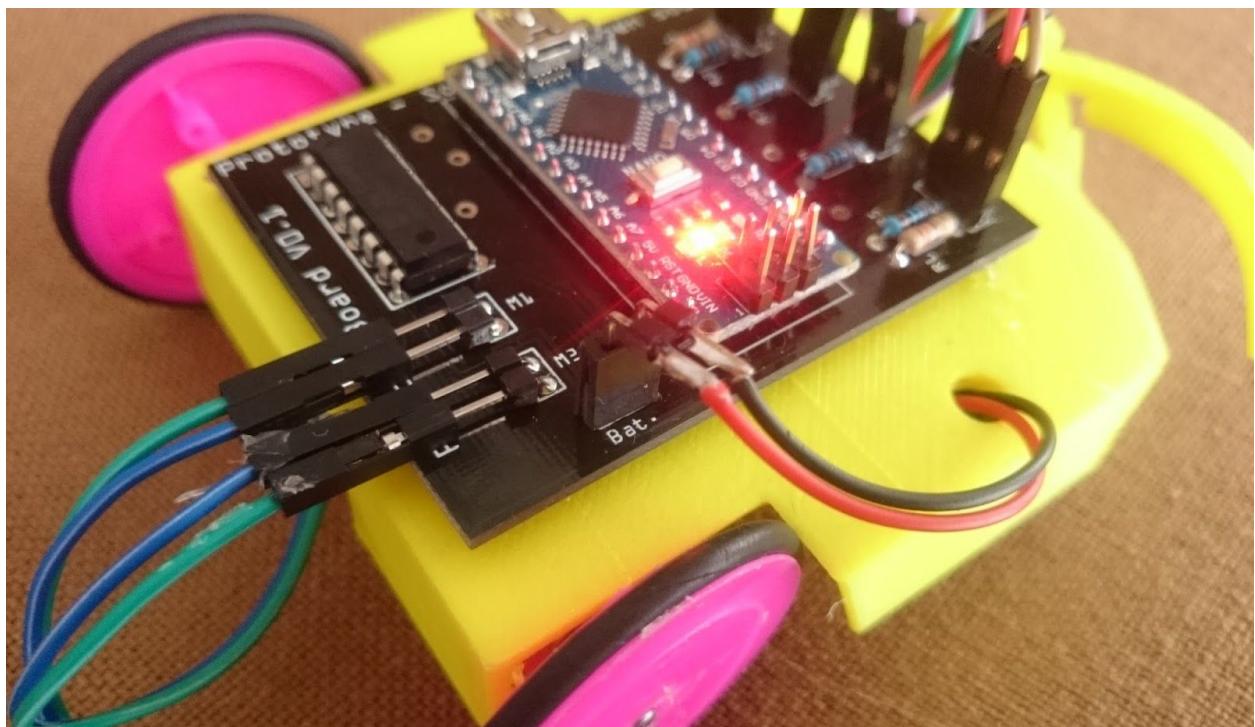
- Take the middle wire, and plug it into the middle connector pin.



- Take the last wire, and plug it into the end connector pin.

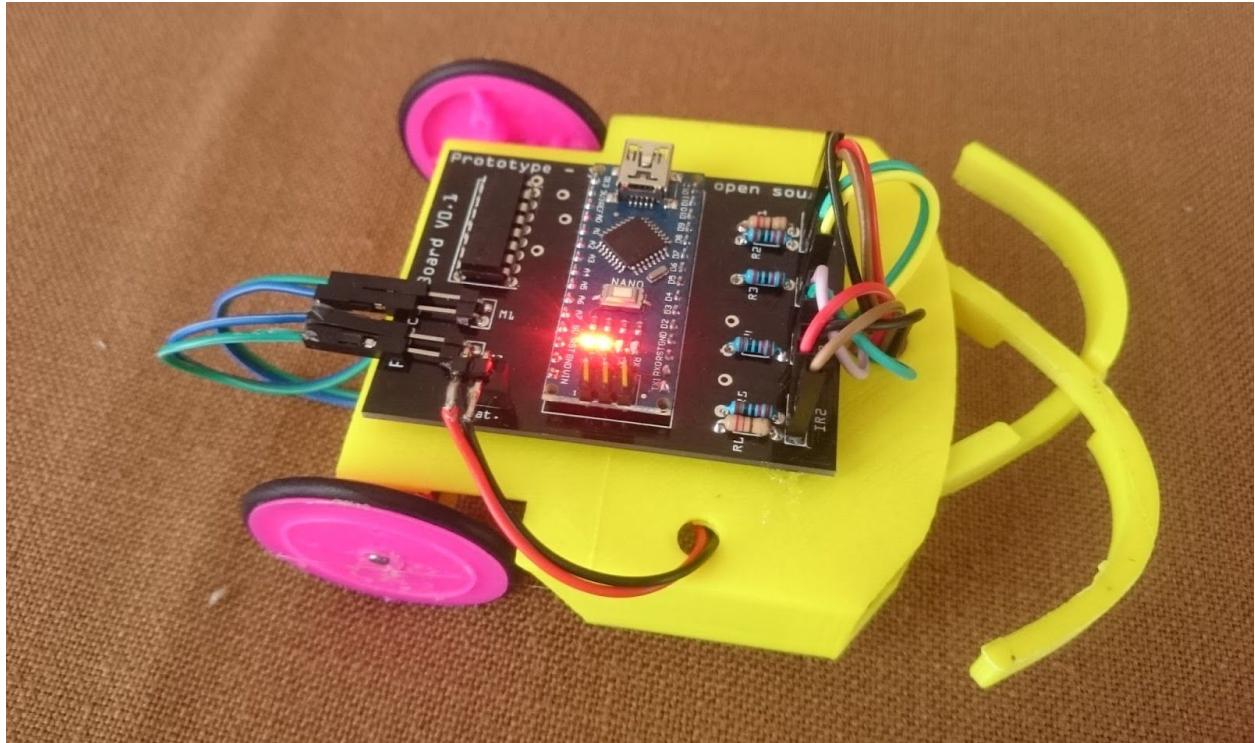


- Repeat for the left Line Sensor, and the connection labelled either “IRR” or “IR2”



- Plug the battery wire into the connector labelled “Bat.”, making sure that the red wire is towards the left.

## Step 10



Congratulations! You're done, and your ProtoBot should now be fully assembled.

**Tip! If one or both of the motors are driving backwards, try reversing how the motor wires are plugged in on the connector.**

**Tip! If one or both of the Line Sensors isn't sensing lines or edges, try reversing how the wires are plugged in on the connector.**

**Warning! Be careful not to plug the battery wires in backwards. It could break your Protobot.**