Building the QuickBot

Control of Mobile Robots: Hardware Lecture #2

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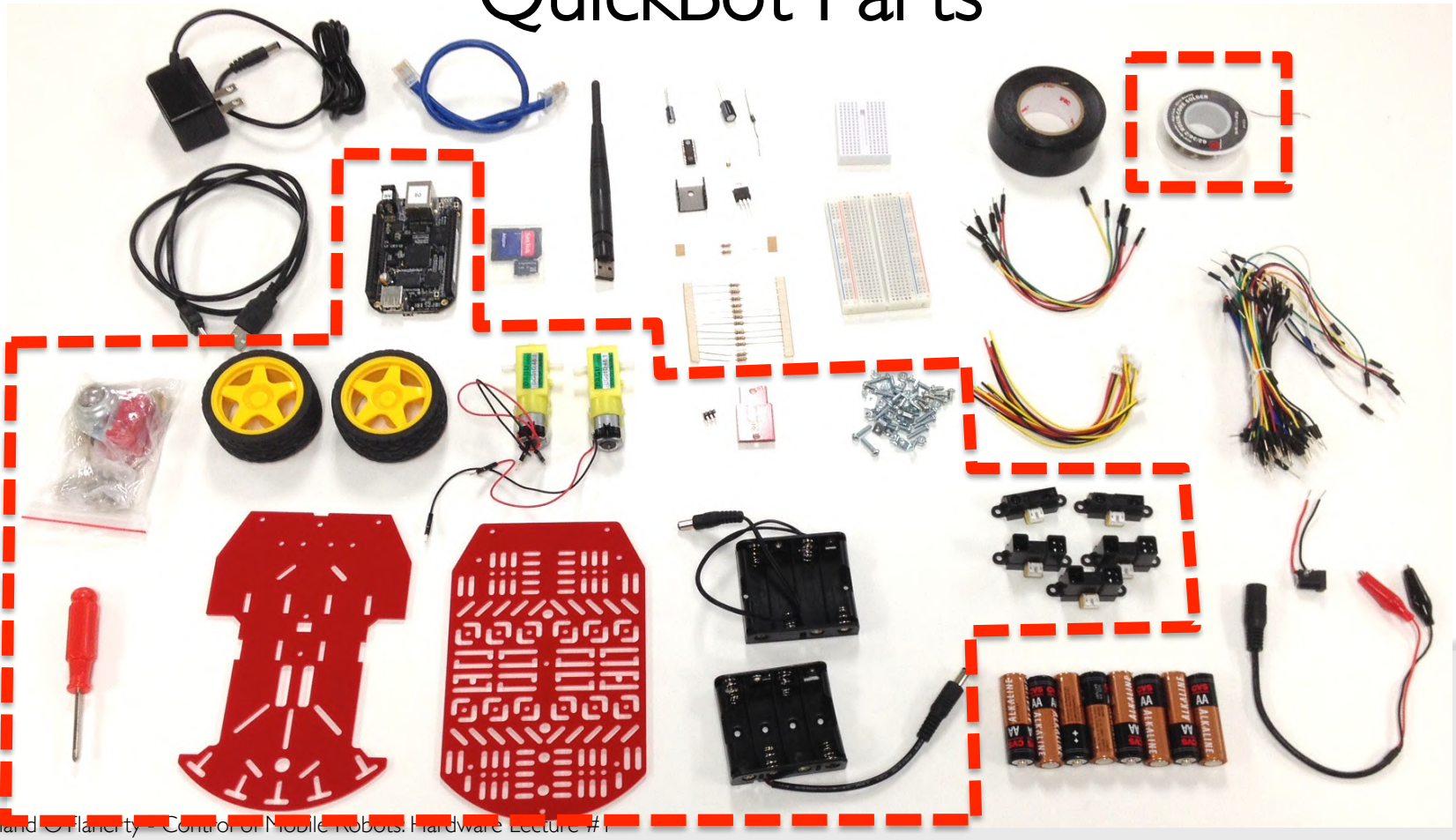
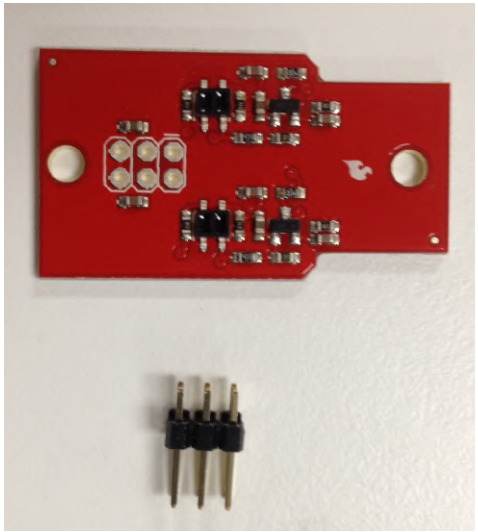
QuickBot Parts



Solder Header Pins Onto Encoder Board

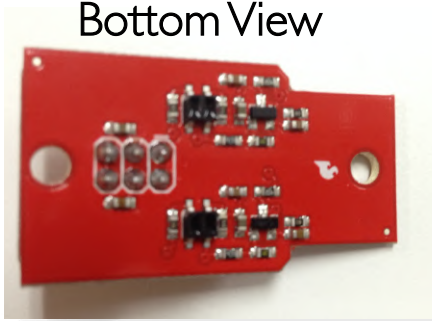


- Encoder Board
- Header Pins

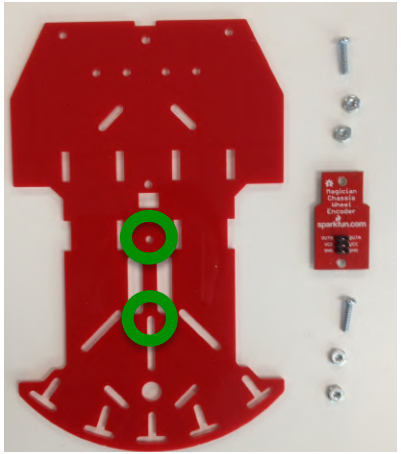
Solder Header

Top View

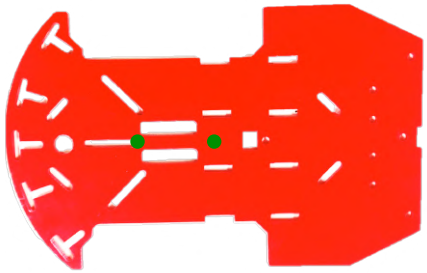
Bottom View



Attach Encoder Board to Bottom Chassis Plate

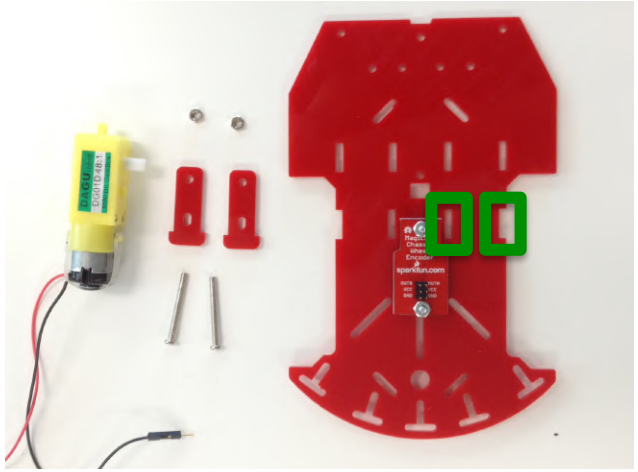


- Bottom Chassis Plate
- One Encoder board
- Two ½" 4-40 Screws
- Four 4-40 Nuts

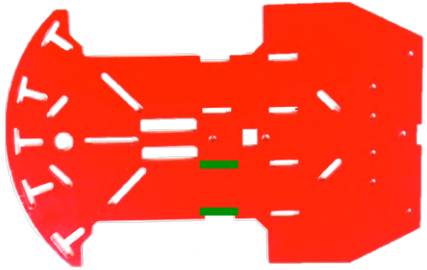


Nuts are on both sides of the encoder board

Attach Right Motor



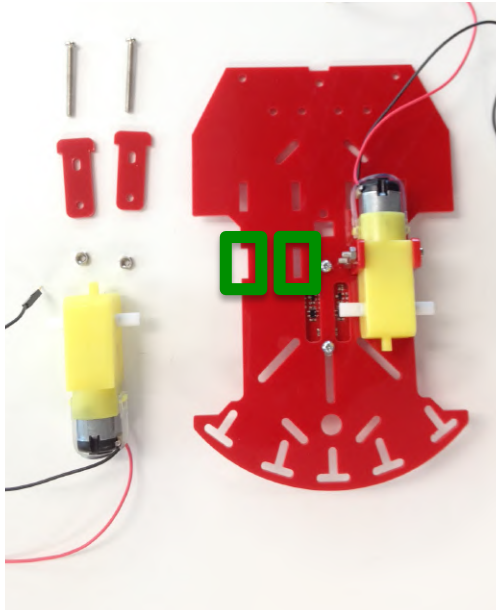
- Bottom Plate Assembly
- One Motor
- Two Motor holders
- Two M3*30 Screws
- Two M3 Nuts



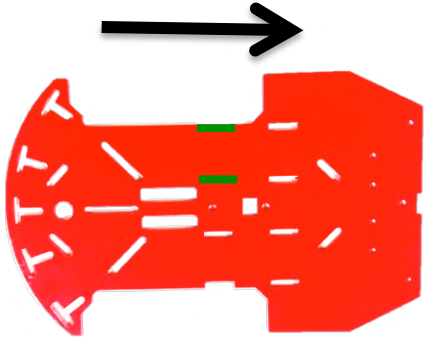
Note: Small knob on the side of the motor faces the outside of the robot

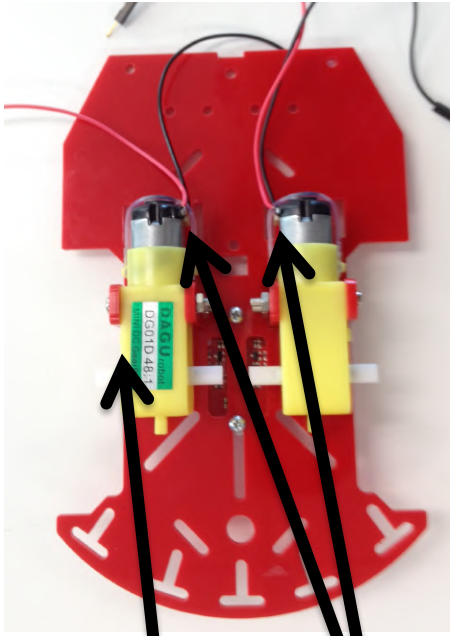
Black wire is close to the chassis board, red wire is away from chassis board

Attach Left Motor



- Bottom Plate Assembly
- One Motor
- Two Motor holders
- Two M3*30 Screws
- Two M3 Nuts

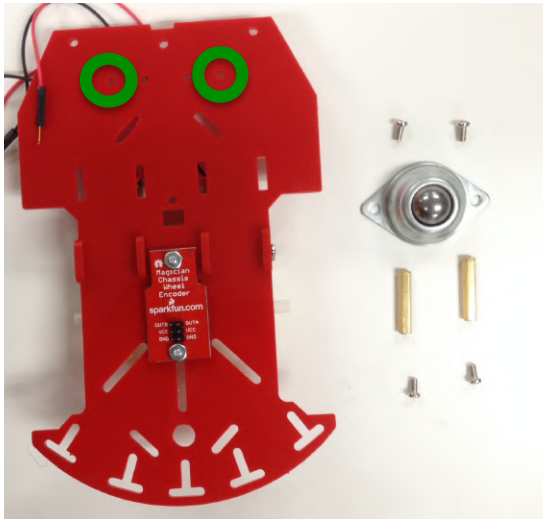




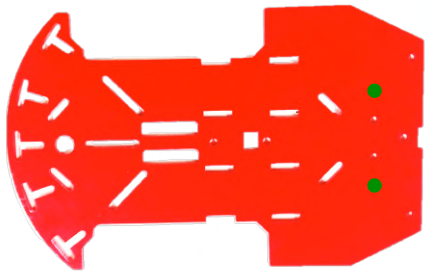
Note: Small knob on the side of the motor faces the outside of the robot

Black wires are close to the chassis board, red wire away from chassis board

Attach Omni Wheel

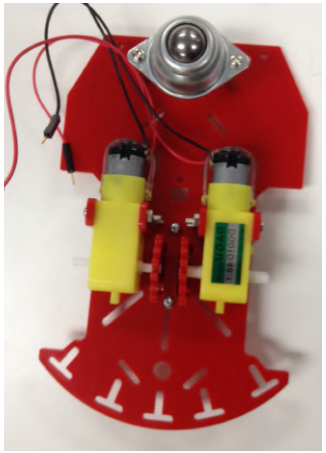


- Bottom Plate Assembly
- One Omni Wheel
- Four M3*6 Screws
- Two L25 Spacers

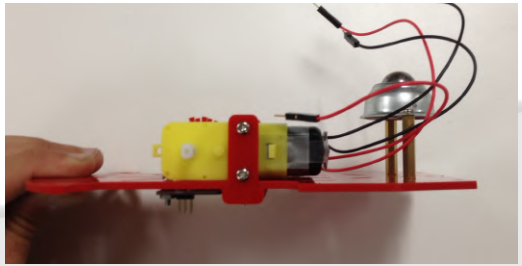


Top View

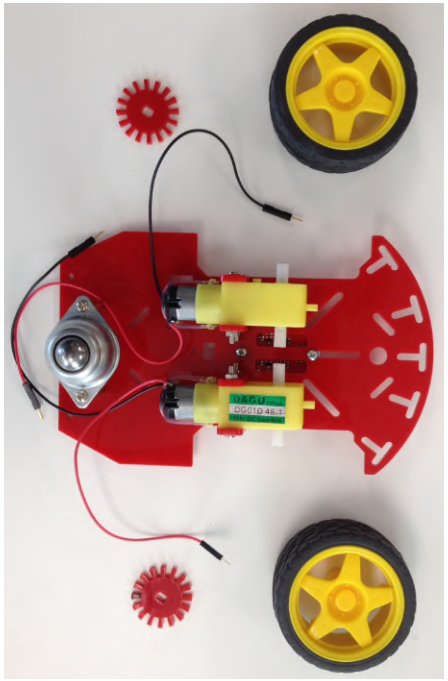
Bottom View



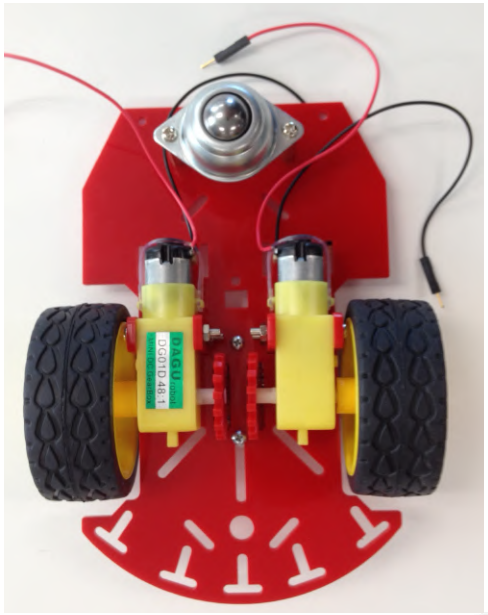
Side View



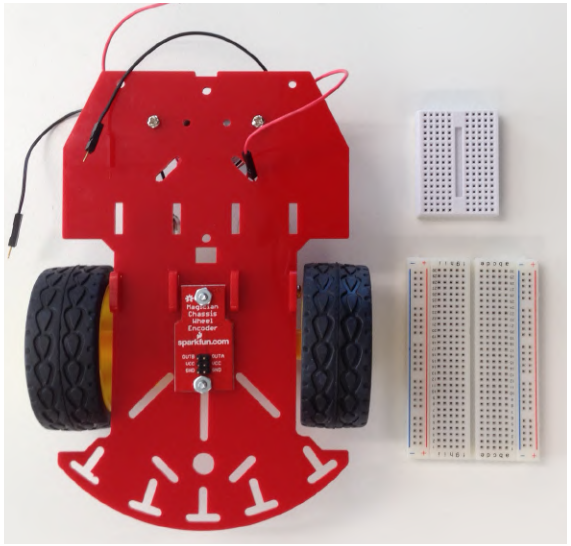
Attach Wheels and Encoder Discs



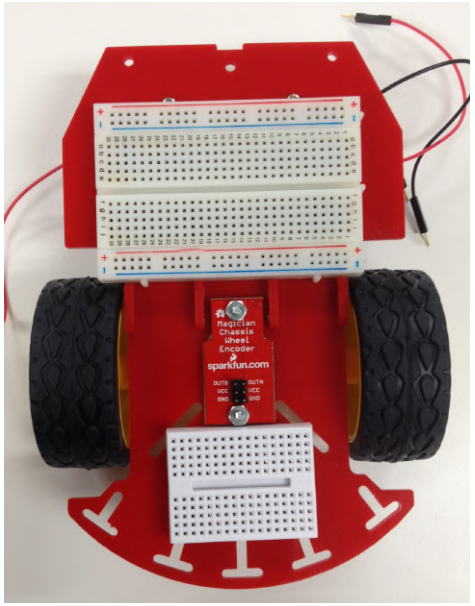
- Bottom Plate Assembly
- Two Wheels
- Two Encoder Discs



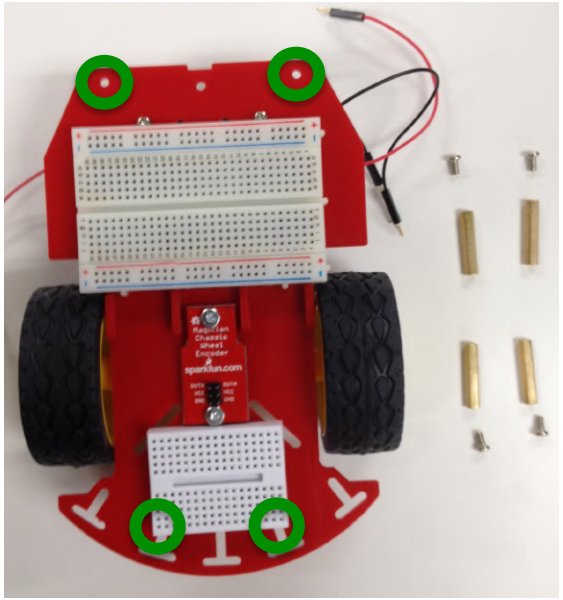
Attach Breadboards



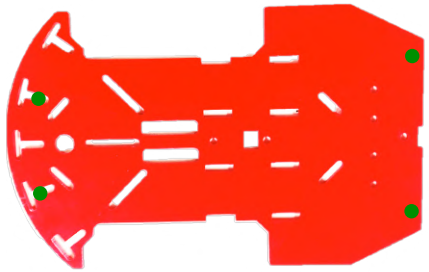
- Bottom Plate Assembly
- One Small Breadboard
- One Medium Breadboard

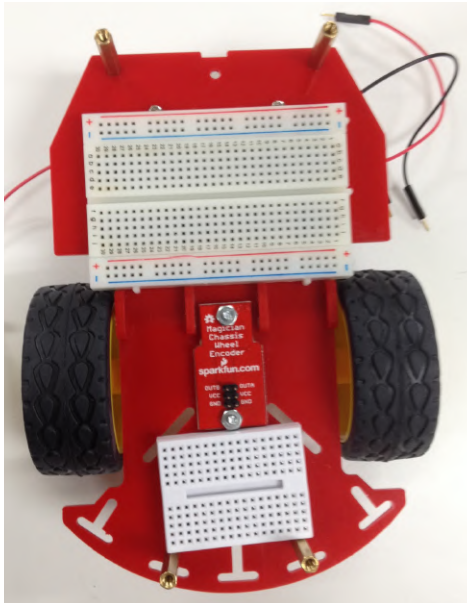


Attach Chassis Standoffs

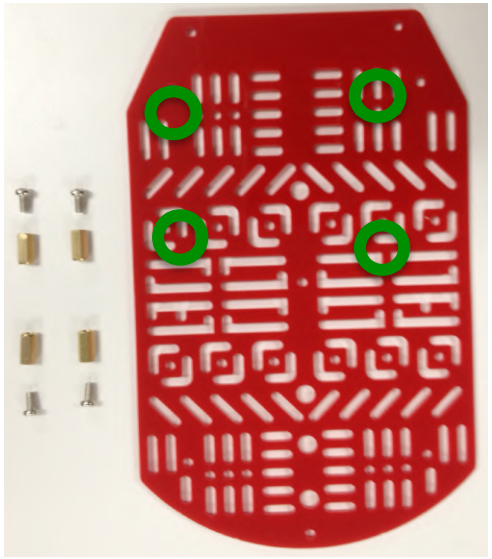


- Bottom Plate Assembly
- Four M3*6 Screws
- Four L25 Spacers

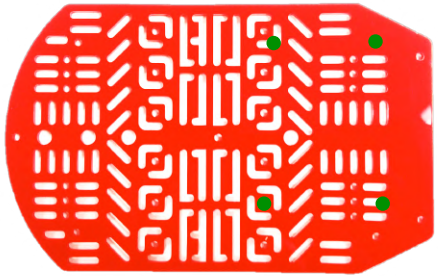




Attach BBB Standoffs

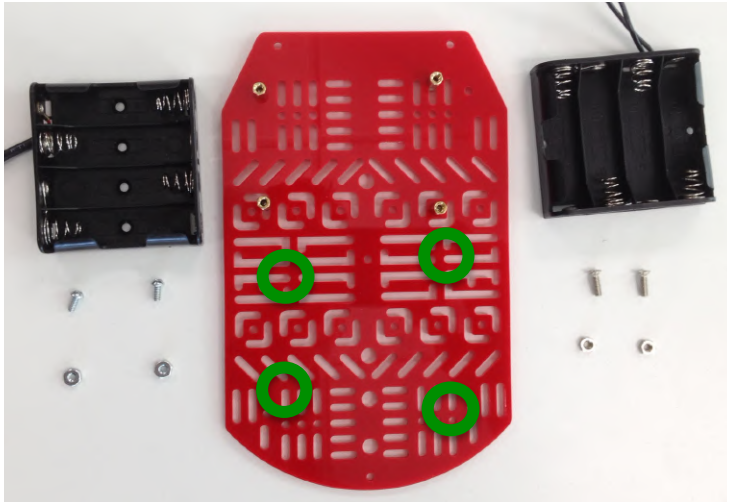


- Top Plate Assembly
- Four M3*6 Screws
- Four L10 Spacers

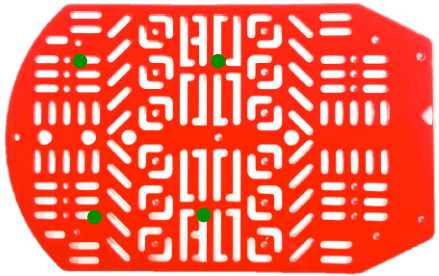


Top View

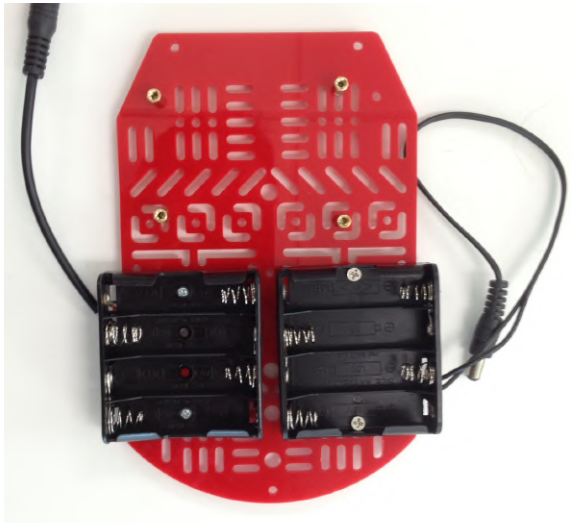
Attach Battery Holders



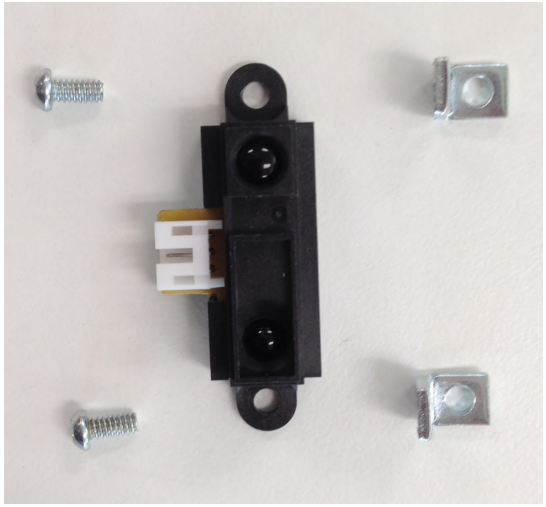
- Top Plates Assembly
- Two Battery Holders
- Two M3*10 Screws
- Two M3 Nuts
- Two ¼" 4-40 Screws
- Two 4-40 Nuts



Bottom View



Assemble IR Sensors

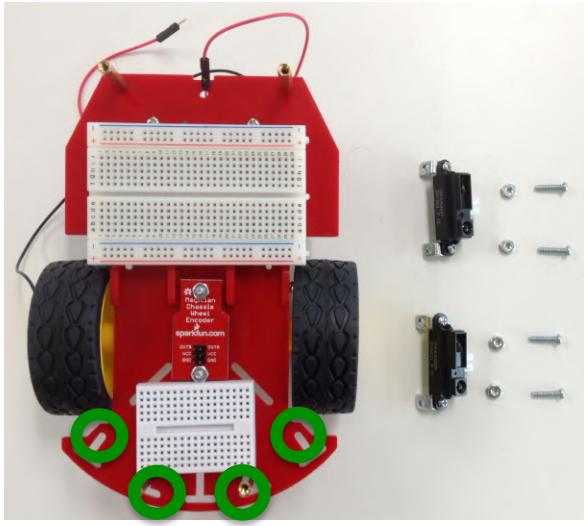


- IR Sensor
- Two ¼" 4-40 Screws
- Two 4-40 Angle Bracket

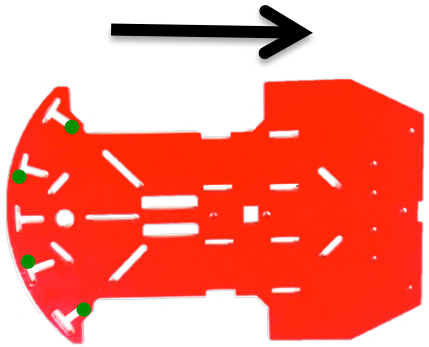
Note: Leave very loose, don't tighten yet

Repeat 5 times!

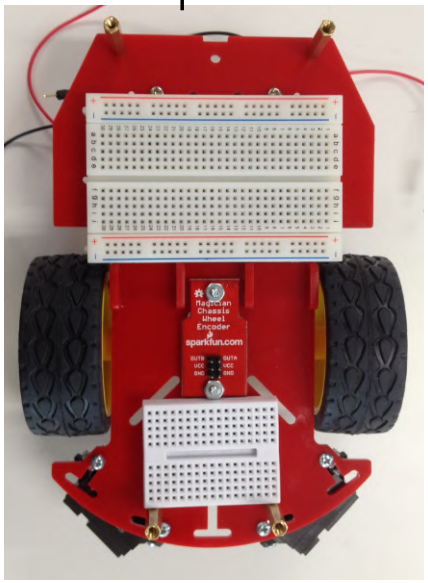
Attach Two Lower IR Sensors

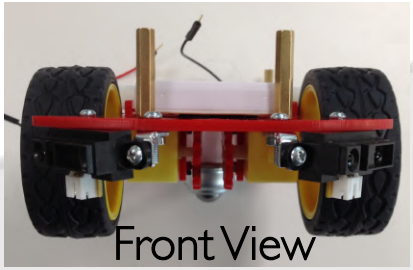


- Bottom Plate Assembly
- Two IR Assemblies
- Four ½" 4-40 Screws
- Four 4-40 Nuts



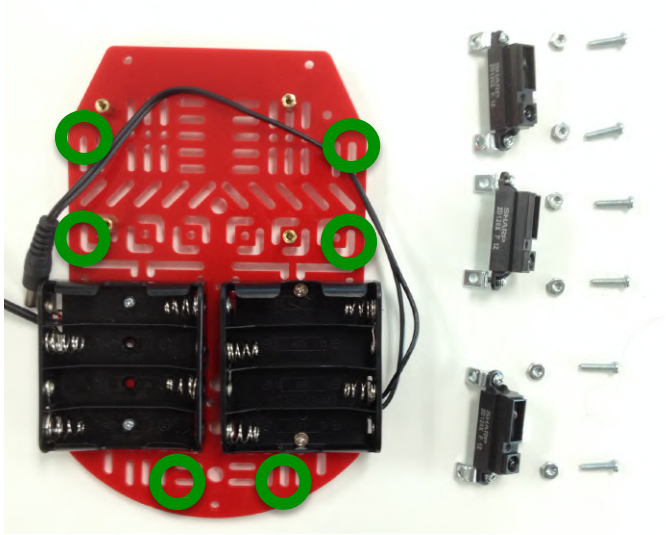
Top View



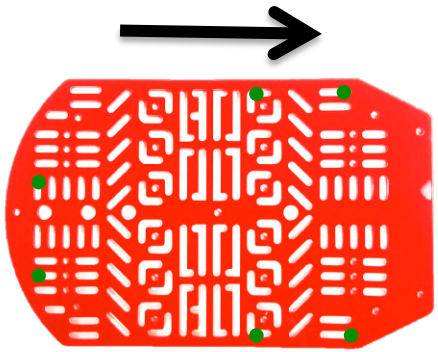


Front View

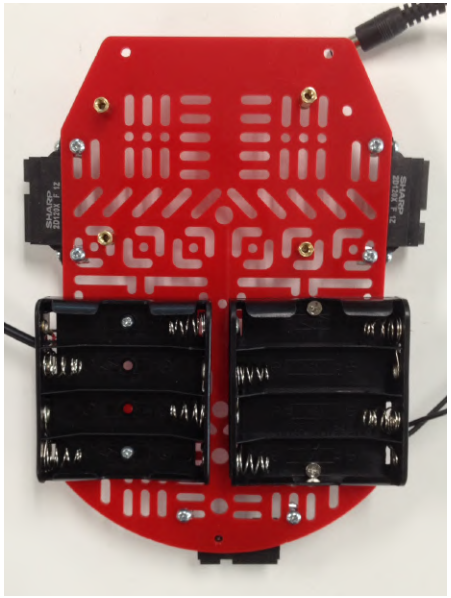
Attach Three Upper IR Sensors



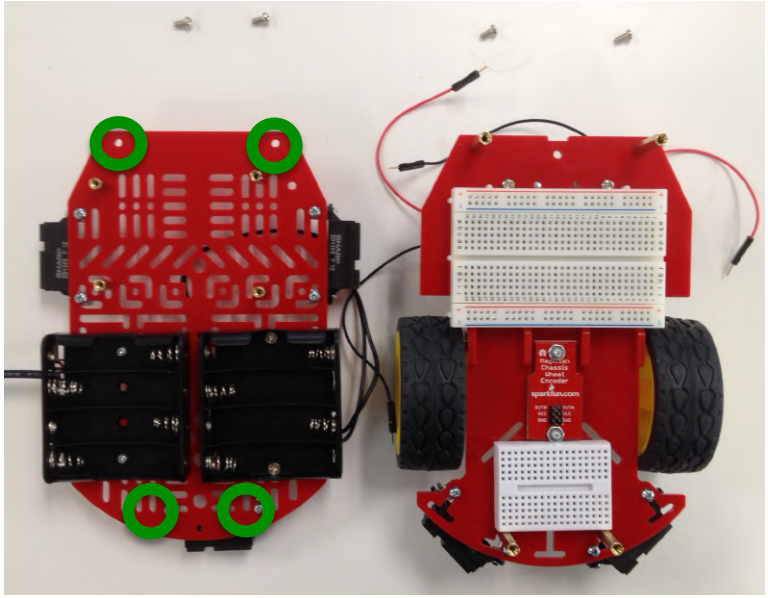
- Top Plate Assembly
- Three IR Assemblies
- Six ½" 4-40 Screws
- Six 4-40 Nuts



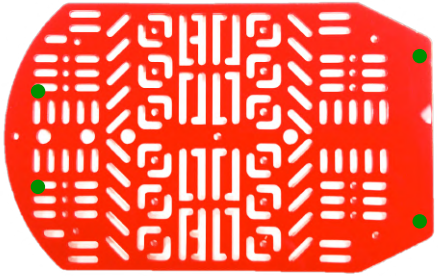
Top View



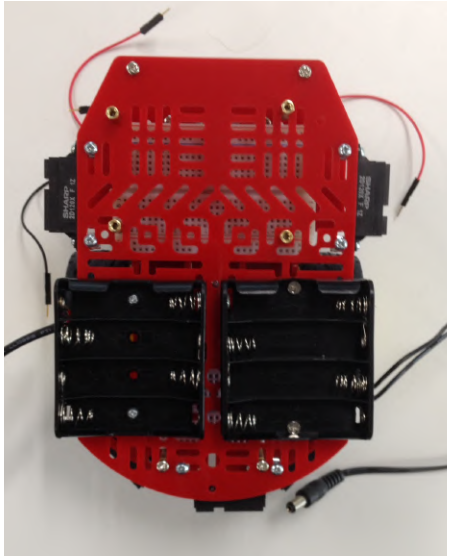
Attach Top Plate Assembly to Bottom Plate Assembly



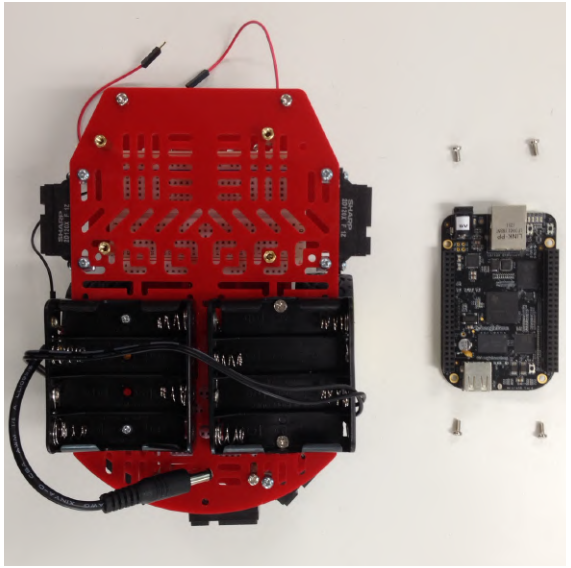
- Top Plate Assembly
- Bottom Plate Assembly
- Four M3*6 Screws



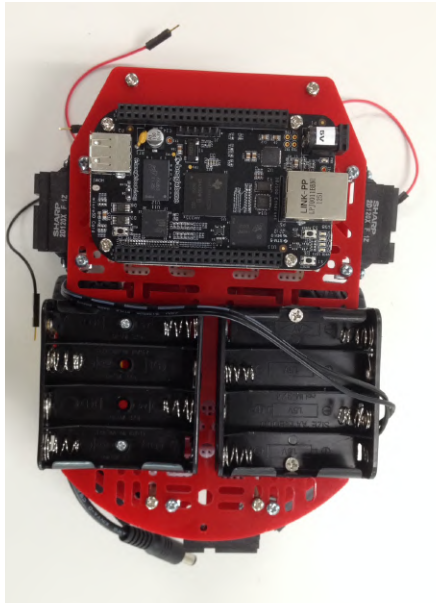
Top View



Attach BeagleBone Black



- Robot Assembly
- BeagleBone Black
- Four M3*6 Screws



All Done!