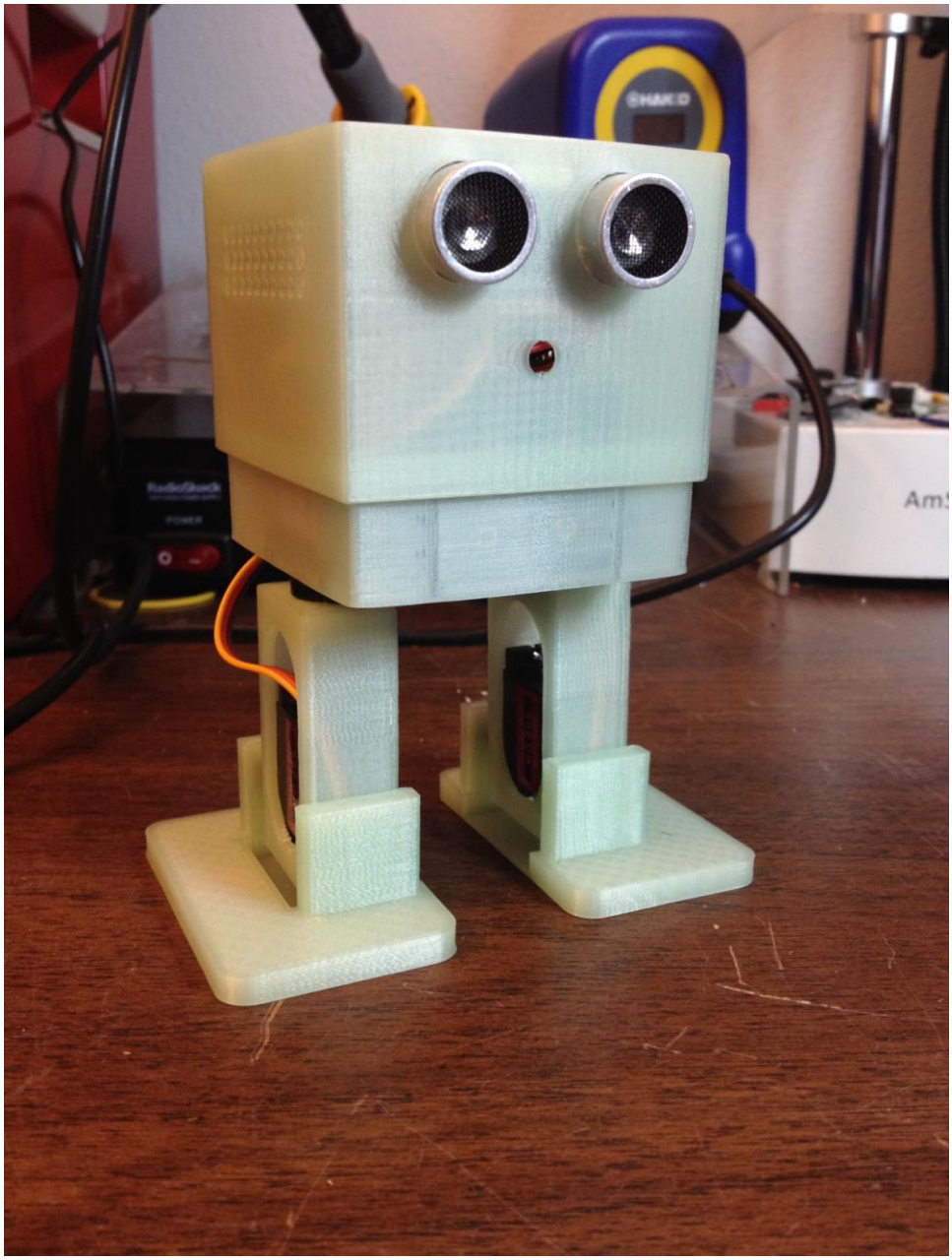
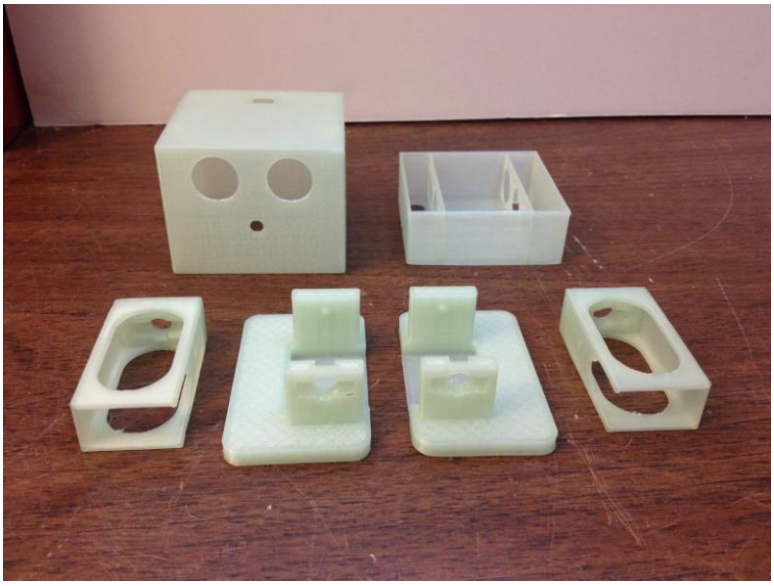
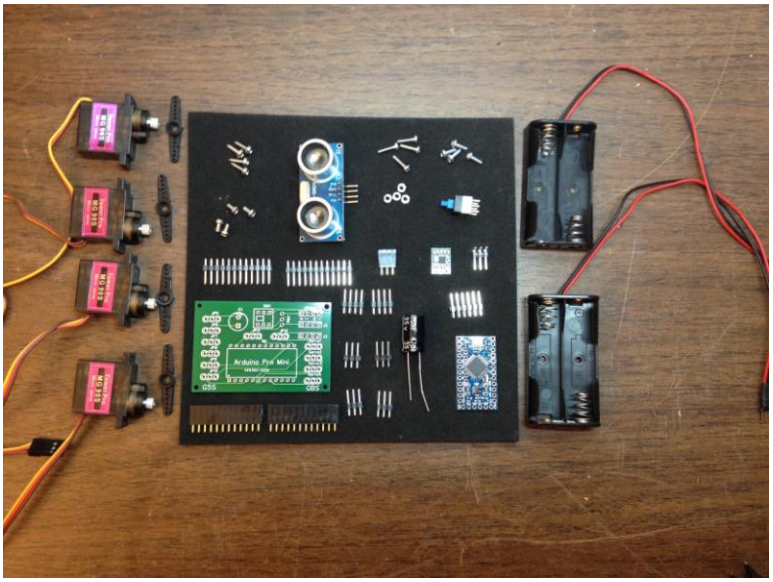
Dance Bot Assembly Instructions



3D Printed Parts



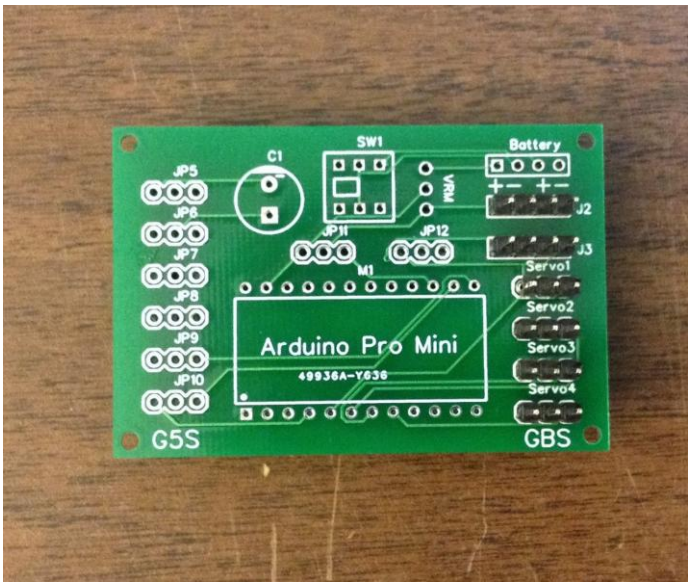
Additional Parts



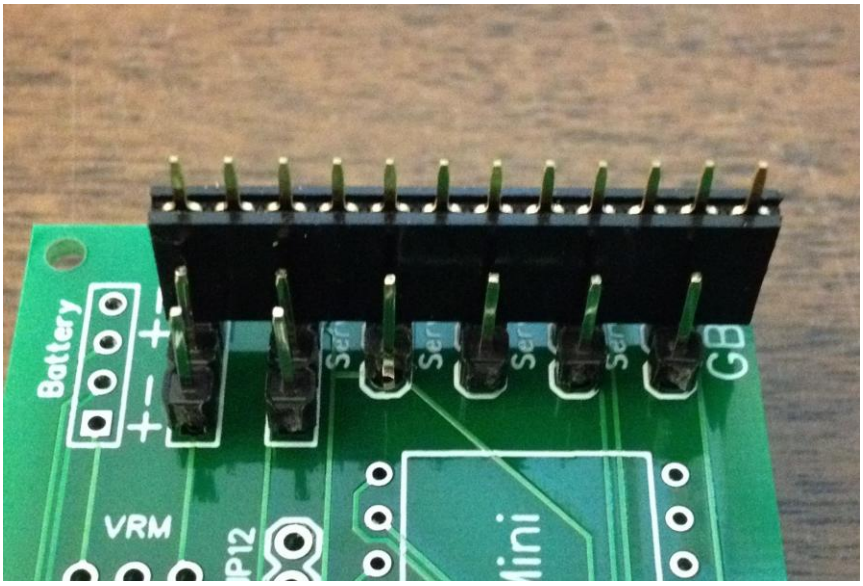
PC Board Assembly

[_] Insert a four pin male header in J2 & J3.

[_] Insert a three pin male header in to Servo1, Servo2, Servo3 and Servo4.

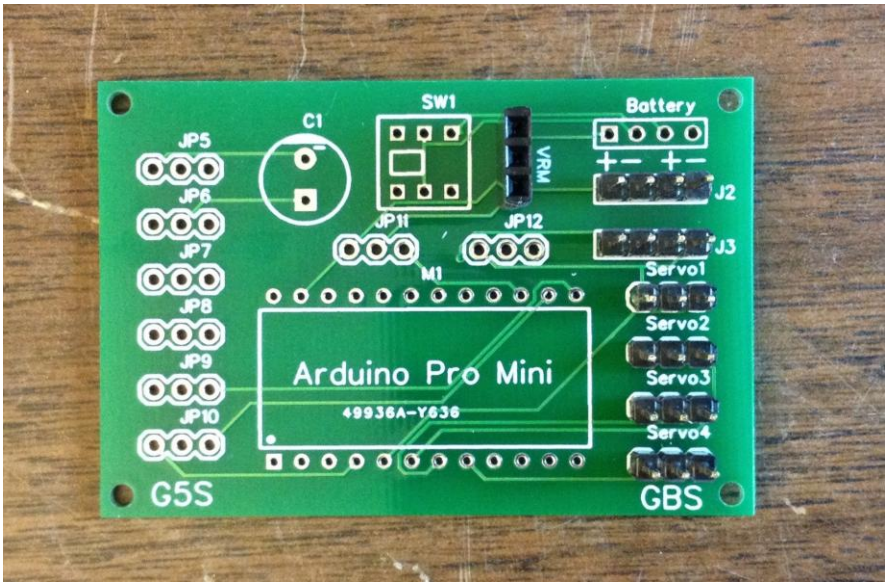


You can use one of the 12 pin female headers to help hold the male headers in place.

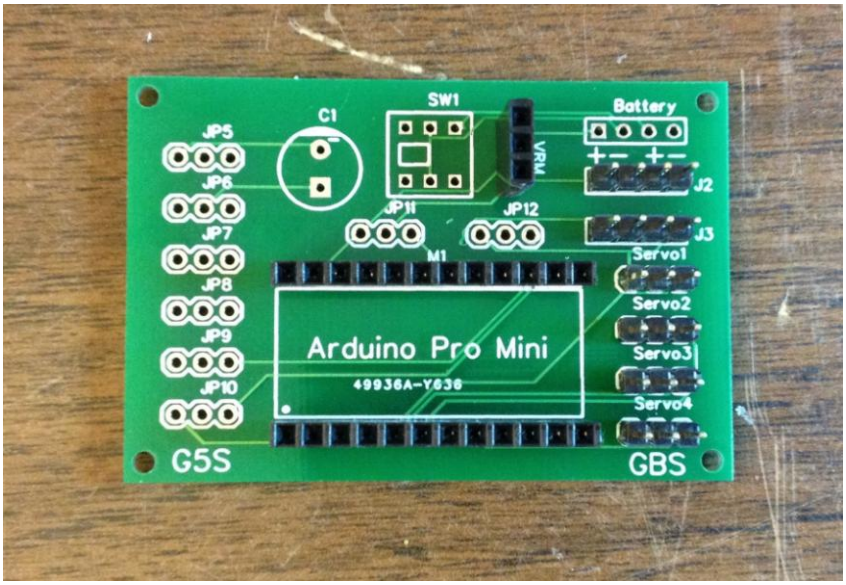


[_] solder the pins on the other side of the PCB.

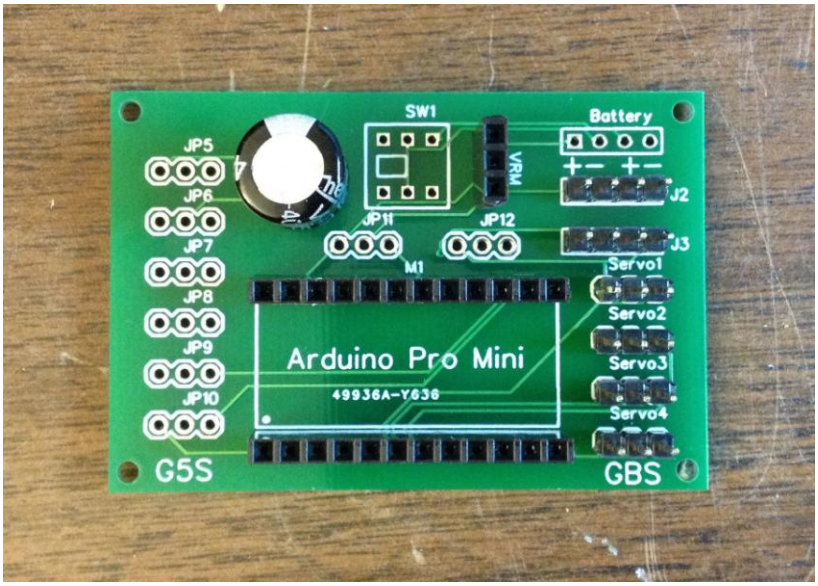
[_] Insert the three pin female header into VRM and solder.



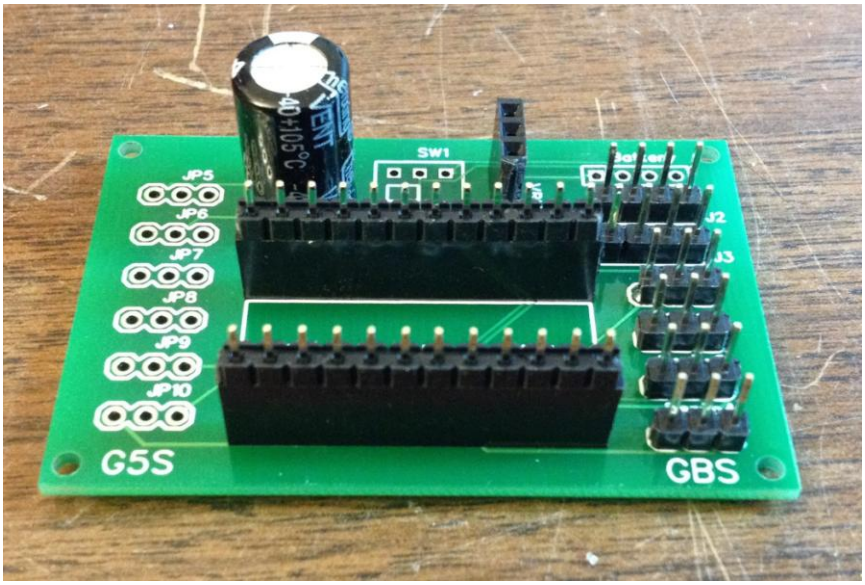
[_] Insert the two 12 pin female headers for the Arduino Pro Mini and solder. You can use one of the 12 pin male headers across the 12 pin female headers and the 3 pin VRM female header to help hold them in place while you solder them.



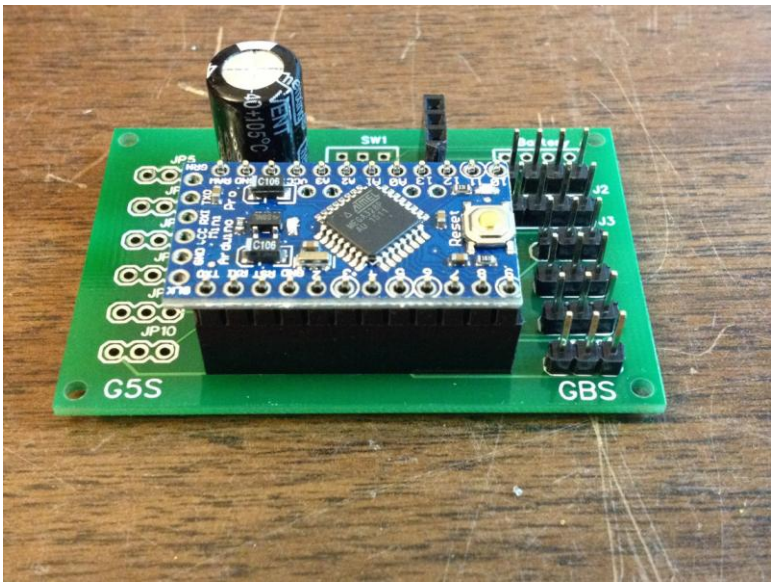
[_] Insert the 470uf electrolytic capacitor in C1 being careful to make sure the negative pin of the capacitor is inserted into the upper hole on the PC Board that is identified with the “-“ symbol.



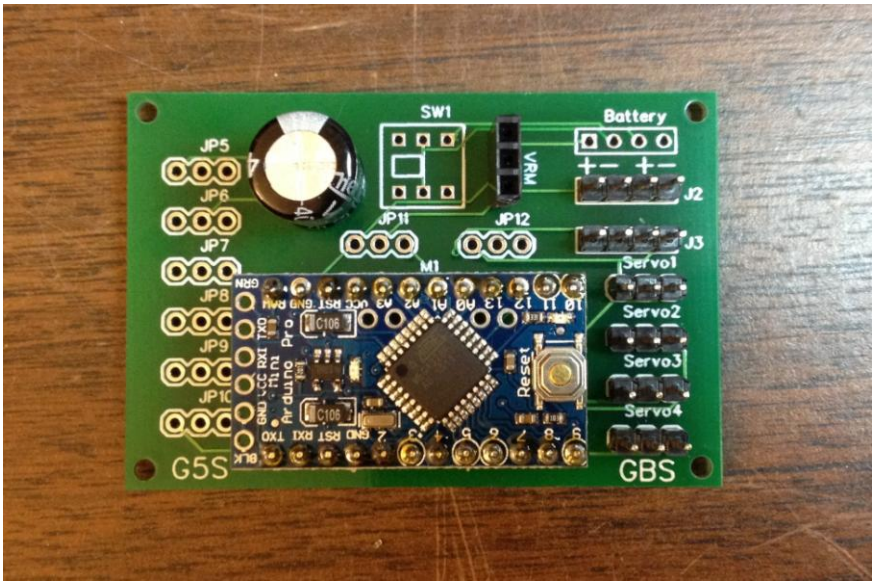
[_] Insert the two 12 pin male headers into the two 12 pin female headers as show below



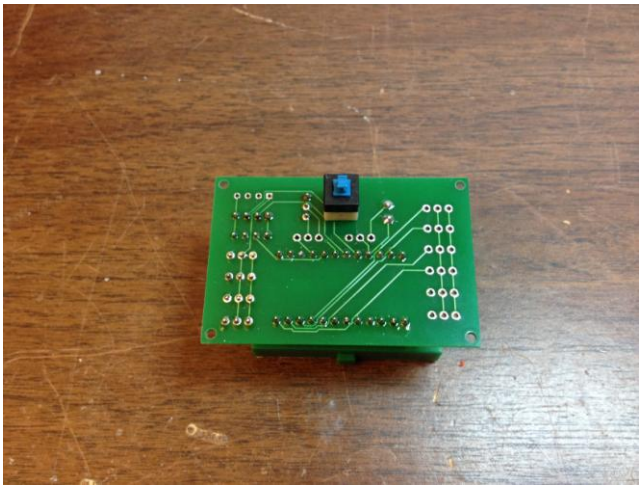
[_] Place the Arduino Pro Mini on the two 12 pin male headers being careful it is orientated as show in the picture below. Solder each of the pins to the Arduino.



At this point your PC board should like the one pictured below.



[_] Turn the PC Board over and insert the locking power button into the SW1 position. Be sure the power button is on the opposite side of the PC board from the other components. Solder it in place.

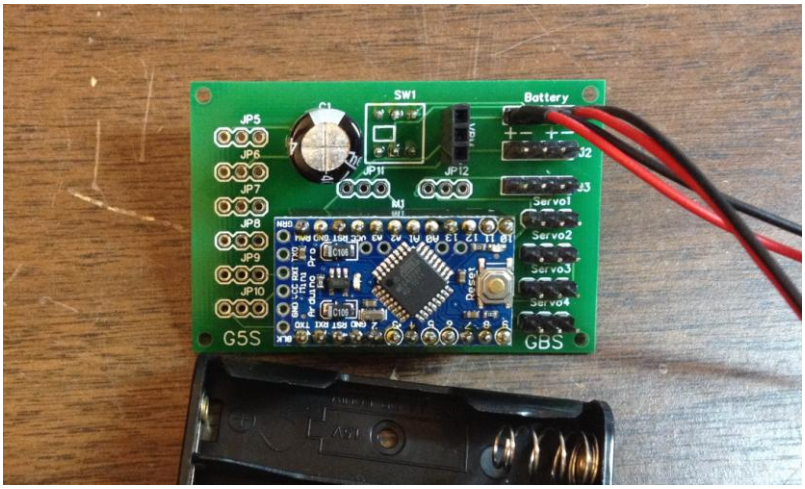


[_] Insert the Red wire from the first AA battery holder into first hole of the Battery port labeled with a '+' symbol and solder.

[_] Insert the Black wire from the first AA battery holder into the second hold of the Battery port labeled with a '=' symbol and solder.

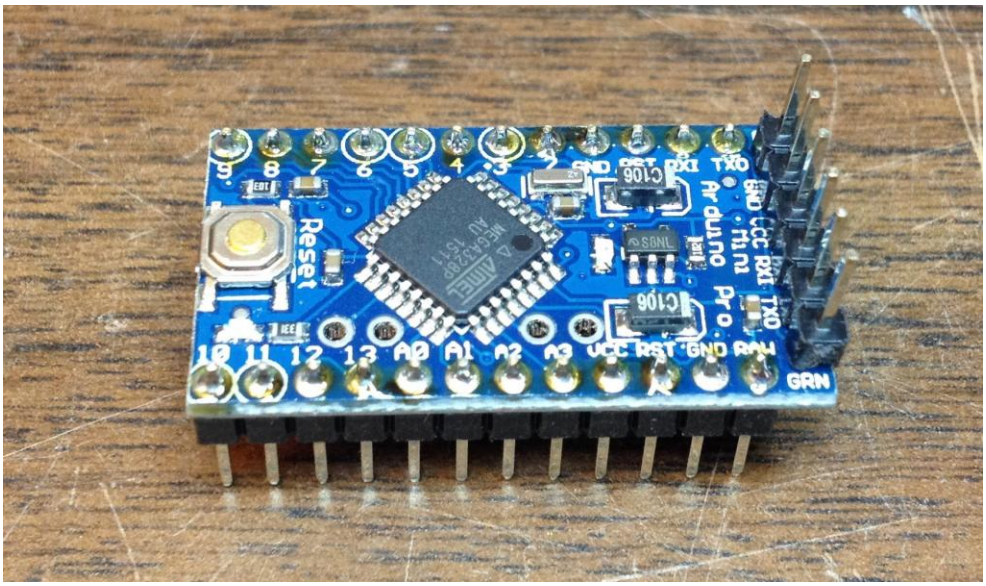
[_] Insert the Red wire from the second AA battery holder into the third hole of the Battery port labeled with a '+' symbol and solder.

[_] Insert the Black wire from the second AA battery holder into the fourth hole of the Battery port labeled with a '_' symbol and solder.

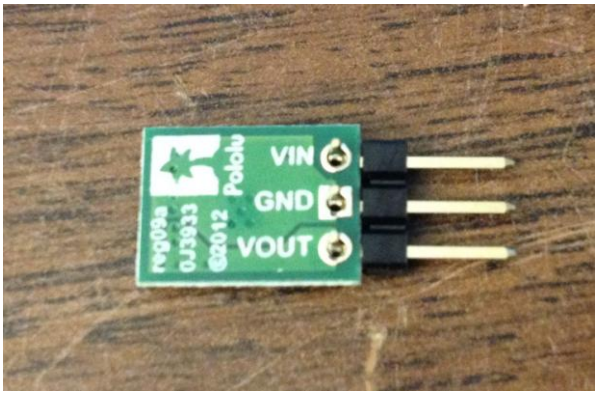


[_] Remove the Arduino Pro Mini from the PC Board by gently wiggling it while pulling on it.

[_] insert the six pin male header into the programming port of the Arduino Pro Mini and solder.

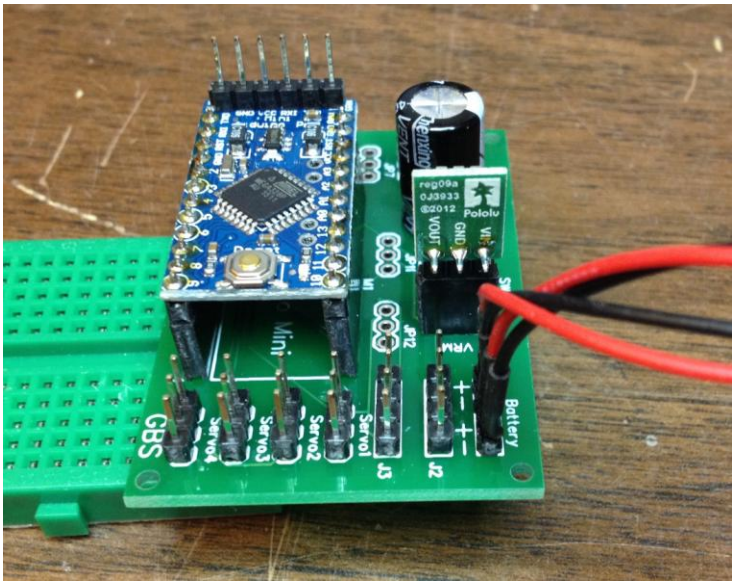


[_] Insert the 3 pin right angle male header into the Voltage Regulation Module and solder.



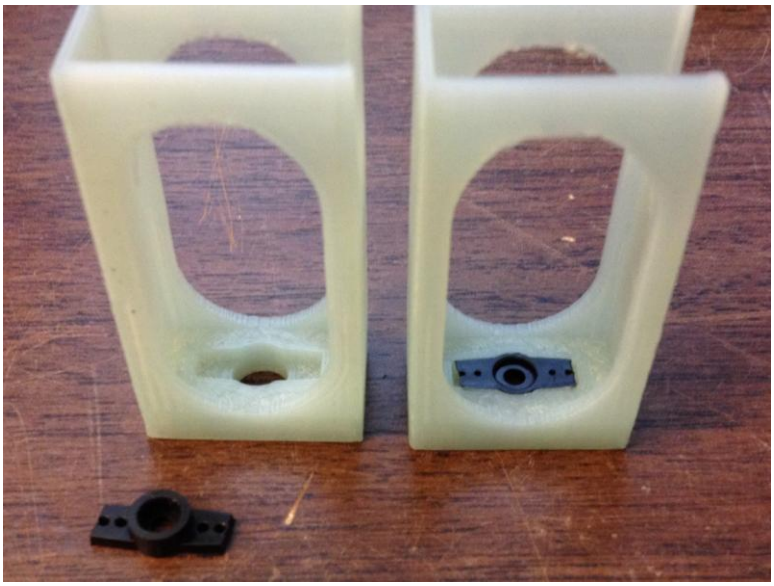
[_] Replace the Arduino Pro Mini back onto the PC Board being careful that programming port is to the left side of the PC Board.

[_] Insert the Voltage Regulation Module into the VRM port with the back side of the board marked with VOUT, GND and VIN facing the Battery port as shown in the picture below.

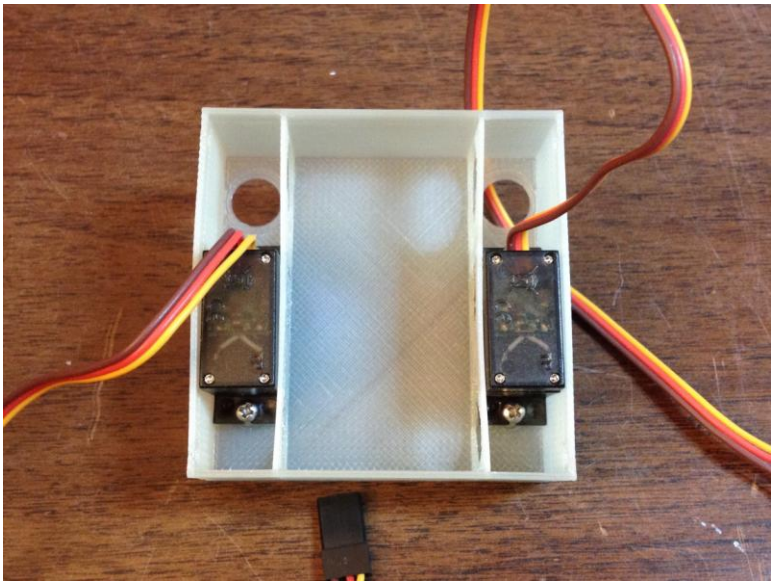


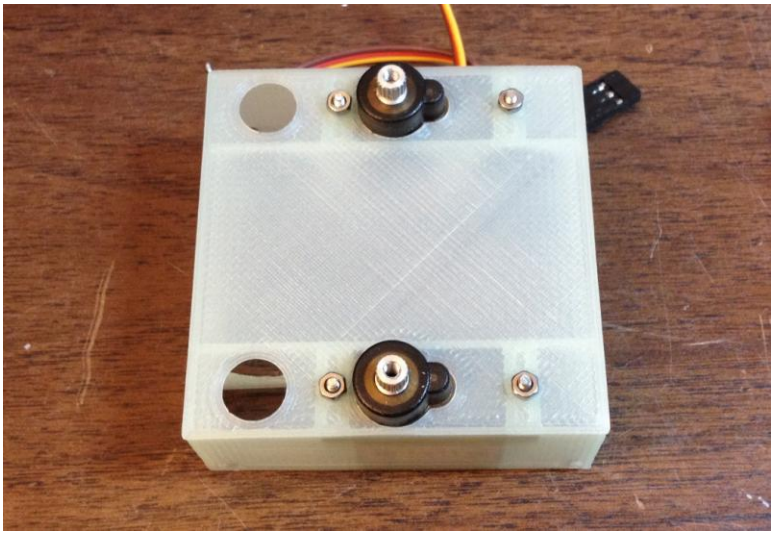
[_] Trim each of the four servo horns so they have two holes on each side of the hub.

[_] Insert one of the trimmed servo horns into each of the 3D printed legs as shown below. They are a press fit so use a screwdriver to make sure the servo horn is fully inserted into the leg.

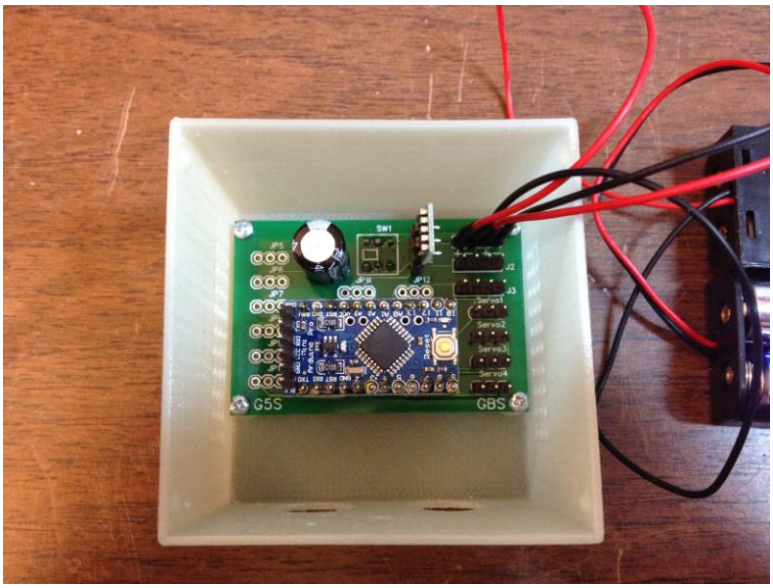


[_] Insert two of the servos into the 3D printed Base and secure with 2 M2 screws and nuts.

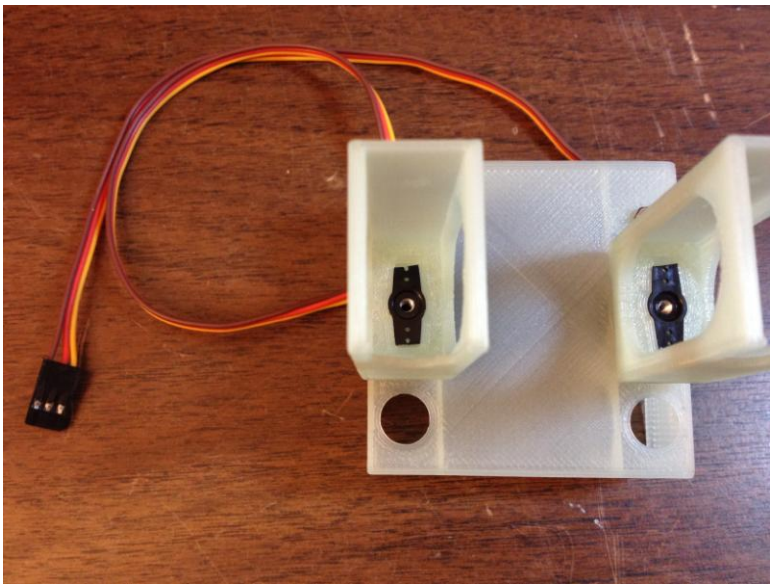




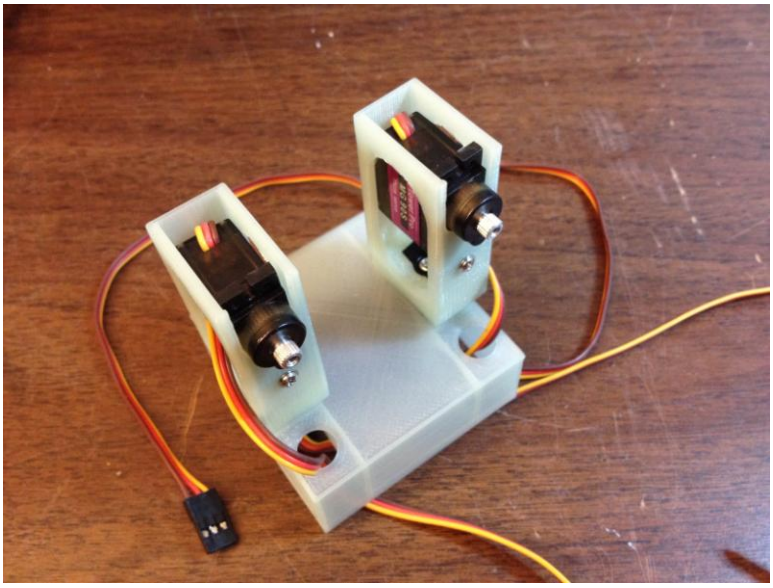
[_] Use 4 2-56 x ¼” self tapping screws to mount the PC Board inside the 3D printed Head. The shaft of the locking power button should be sticking through the square hole in the top of the head.



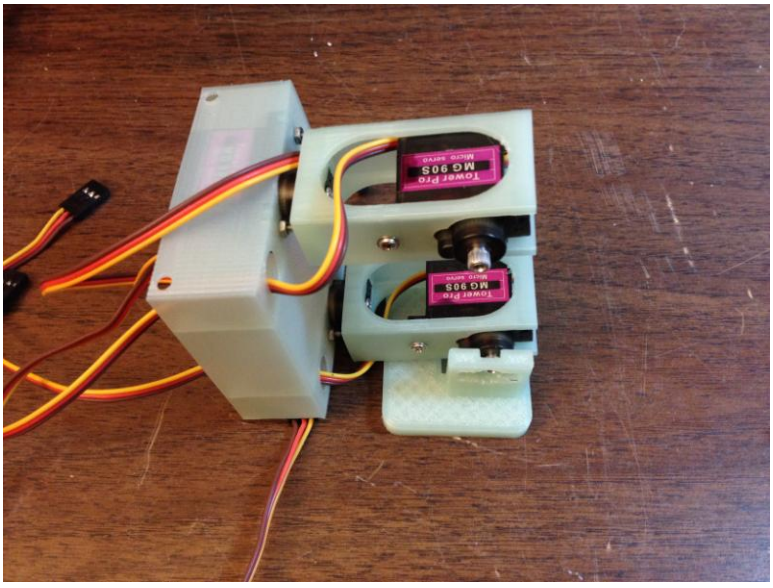
[_] Press fit the Legs to the servos mounted in the base. The legs should be as “square” as possible with the base before securing them using the small machine screw provided with the servos. Hold the legs still so the servo doesn’t rotate as you tighten the screw. It might not be possible to get the legs perfectly “square” and some misalignment of the Legs can be corrected for during “calibration.”



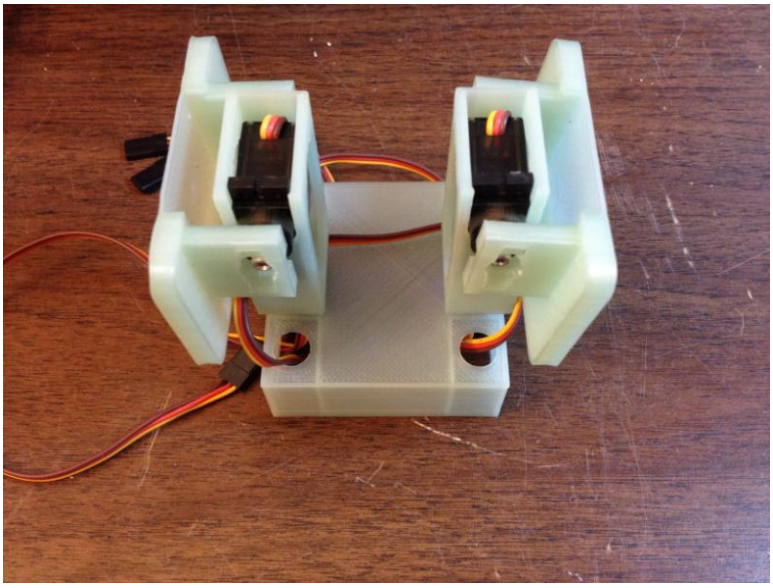
[_] Insert one of the remaining servos into each Leg as shown below. Dress the servos cable down behind the servo and out the side of the leg and through the small hole in the bottom of the base. Affix the servos in place using one of the small sheet metal screws provided with the servos.\



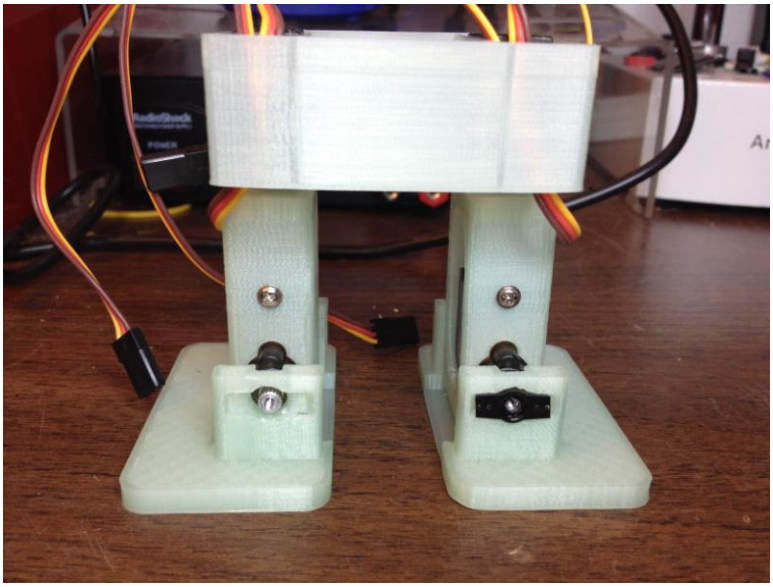
[_] Lay the bot on its side and attach the right foot to the right leg as shown below. Align the bump on the front of the foot with hole in the front of the leg and slide the servo horn through the cutout in the back of the foot. It is a tight fit so you may need to flex the foot a little to get it to fit. Be careful not to rotate the servo's shaft while you are attaching the foot.



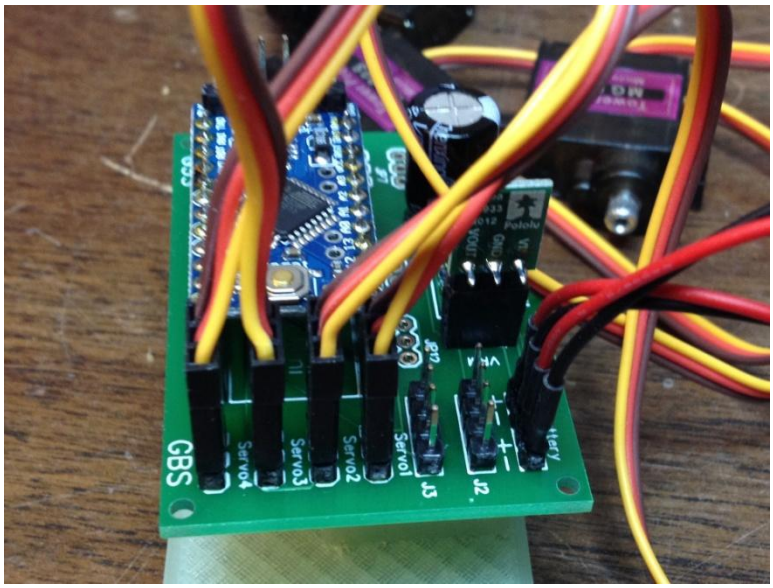
[_] Attach the left foot to the left leg using the same procedure as the other leg.



[_] Stand the bot up with its feet flat on the table and press one of the two remaining trimmed servo horns onto the servo's shaft. Secure the servo horn using the small machine screw provided with the servo being careful not to rotate the servo's shaft.

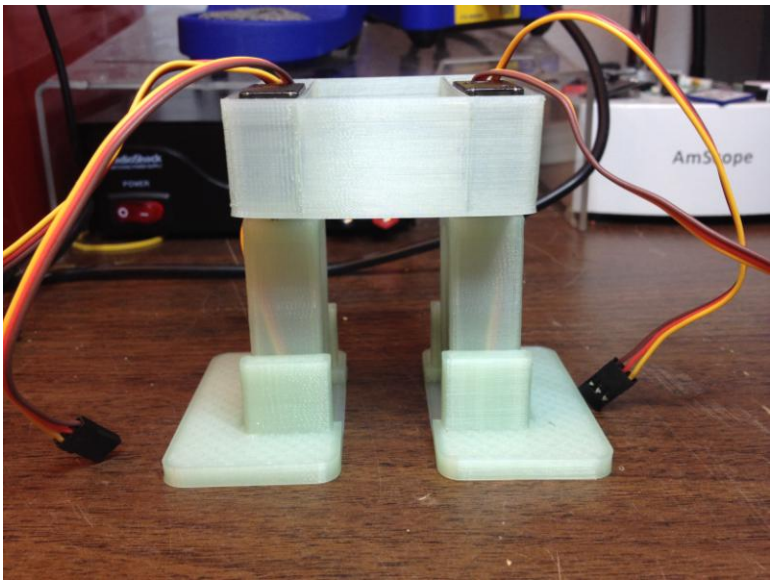


[_] Connect the four servo cables to the Servo1, Servo2, Servo3 and Servo4 ports. The brown wires (ground) should be on the left and the yellow wire (signal) to the right.

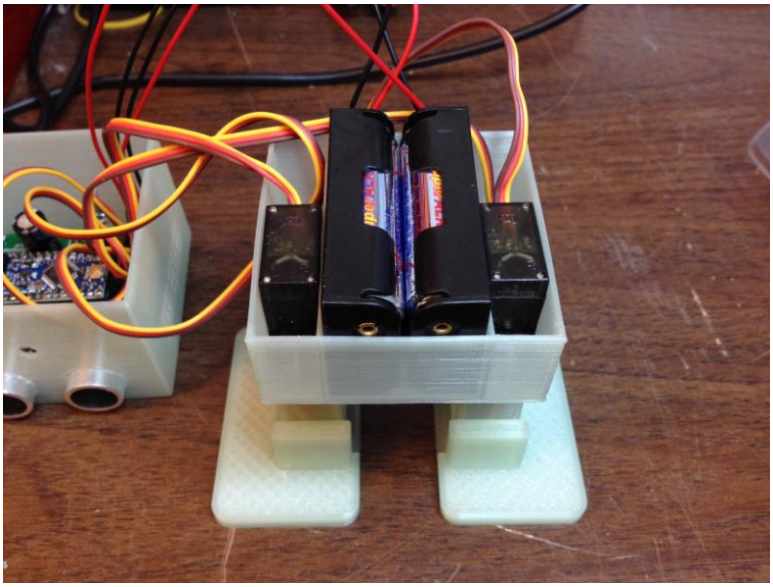


With the Bot standing up and facing you:

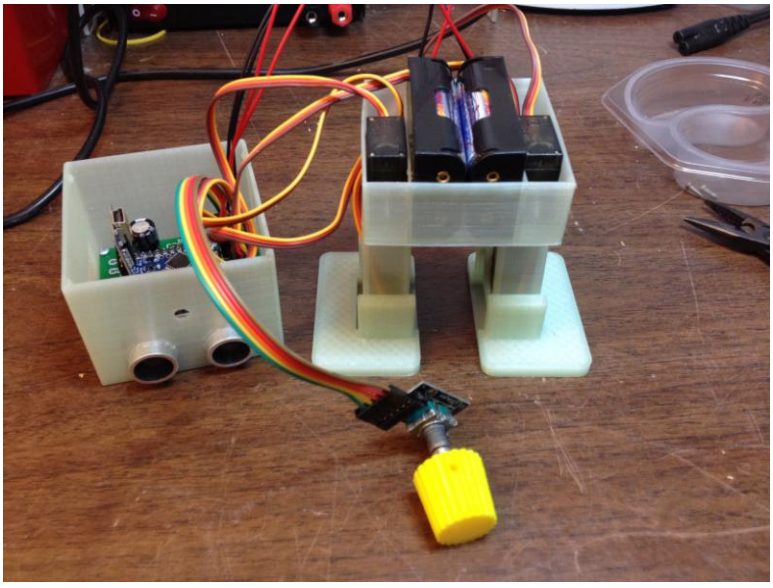
- The top left servo connects to Servo1
- The top right servo connects to Servo2
- The bottom left servo connects to Servo3
- The bottom right servo connects to Servo4



[_] Place the two battery holders into the base as shown below.



[_] Attach the calibration tool to the PC Board. The connector with 2 wires connects to the J2 port and the connector with the 3 wire connects to the J3 port.



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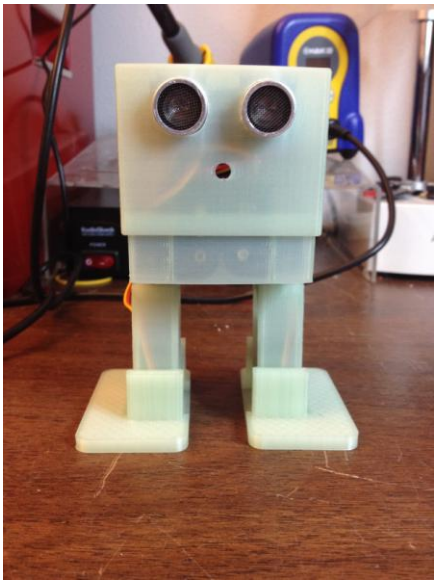
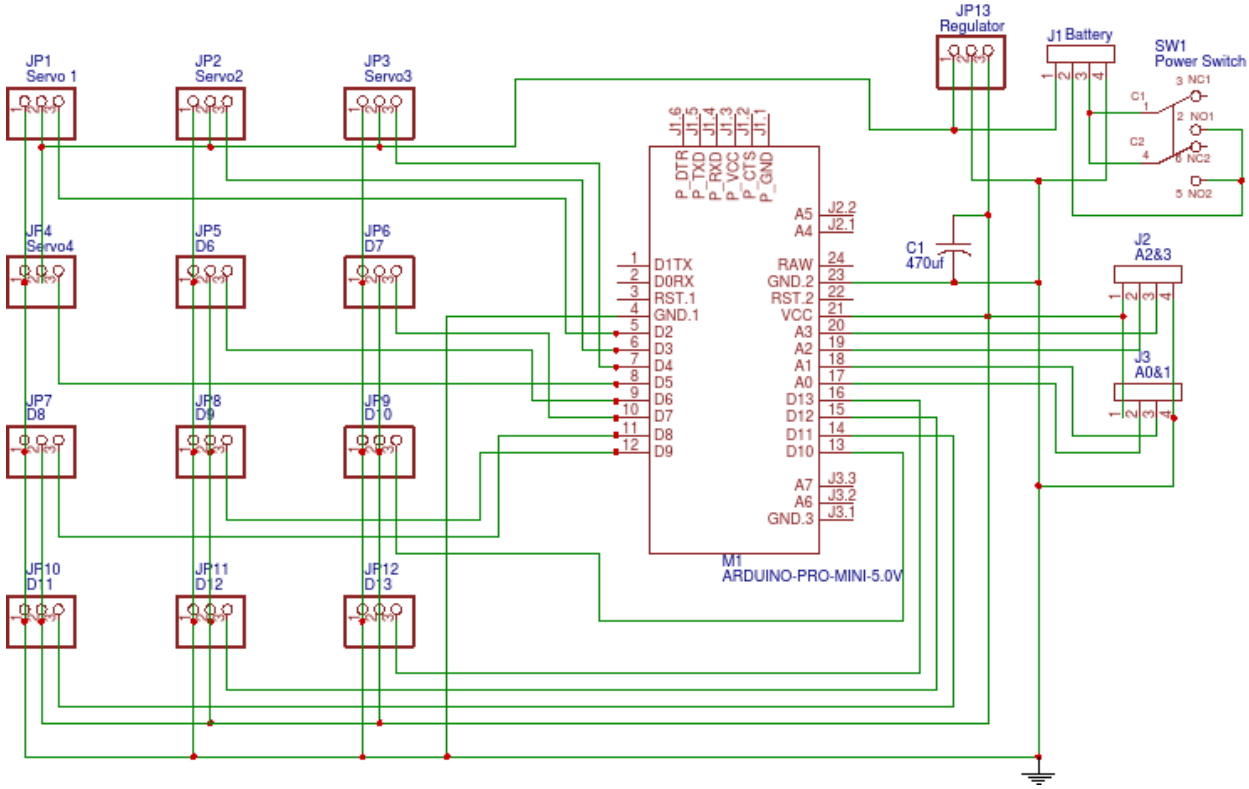


[_]

PC Board Schematic



PC Board Layout