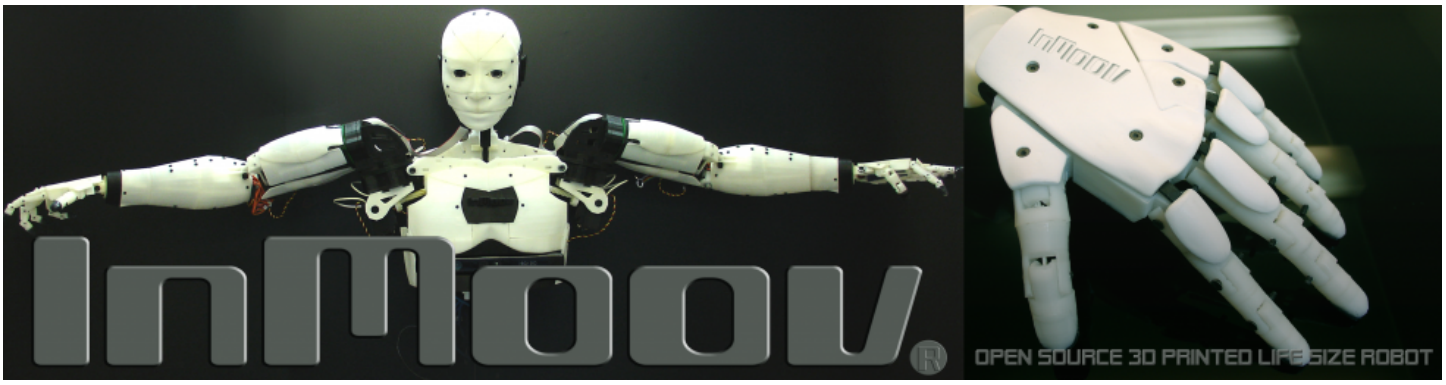
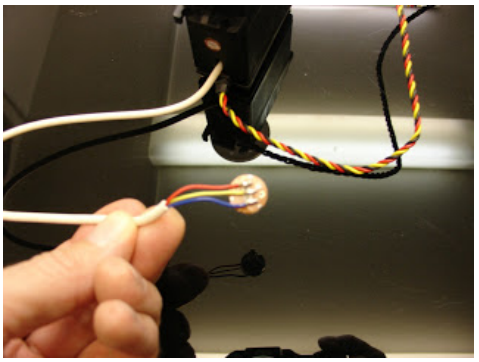


Shoulder and Torso

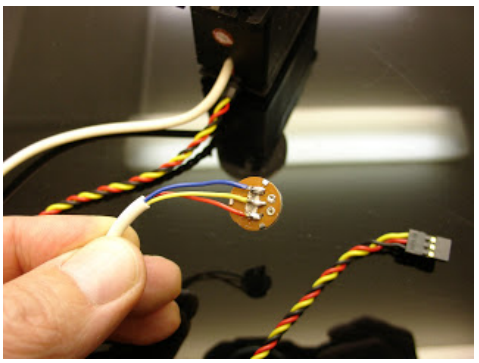
Building a shoulder and torso

All right let see how we're goig to proceed. In this tuto we are going to build the shoulder and torso simulteanously. I would have rathered do it seperatly, but my pictures were already done this way, and I'm not going to take the robot apart for to make new pictures.
STEP1:

Follow the step1 in "Building the bicep of InMoov" for to extract the potentiometers of your servos. There is a difference though in the last part during re-welding the cables to the potentiometer depending if you build the right or left shoulder.

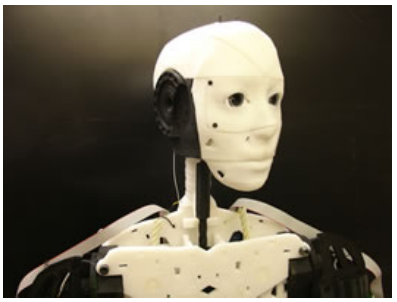


Weld the cables this way, if you are building the right shoulder. In this picture the blue replace the green or the black wire depending on your servos.



Weld the cables this way, if you are building the left shoulder. In this picture the blue replace the green or the black wire depending on your servos.

This will allow your servo to turn the opposite way making your initial 0 position becoming your 180



HELP ME EXPERIMENT

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MEMBER ACTIVITIES

Dwayne Williams uploaded a new picture: opencv_fd_1.jpg
17 hours, 59 minutes ago

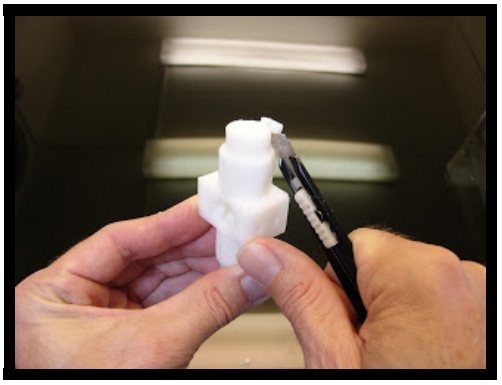
Rob is standing proud as a test bot for Grog.
He is very pleased to be a part of enhancing the Inmoov Nation.

Fred uploaded a new picture: Possible spring for...
1 day, 16 hours ago

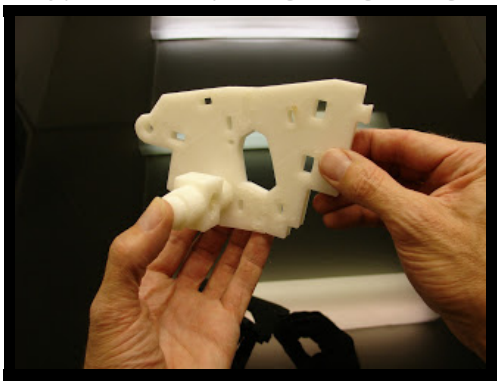
Maybe a possible spring for tendons ?

position. And your initial 180 position become your 0 position. I hope you get the idea. This will be done on both servos used in each the shoulder. Now let start the assembly.
STEP2:

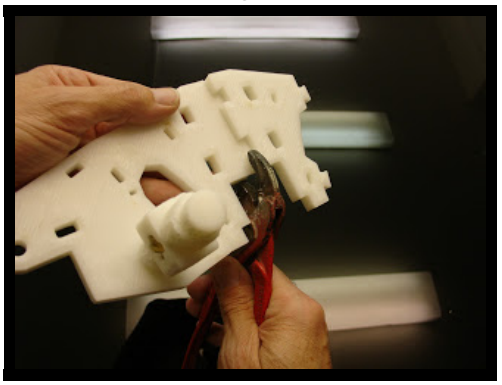
If you plan on building both shoulders you should repeat most of the following steps explained bellow.



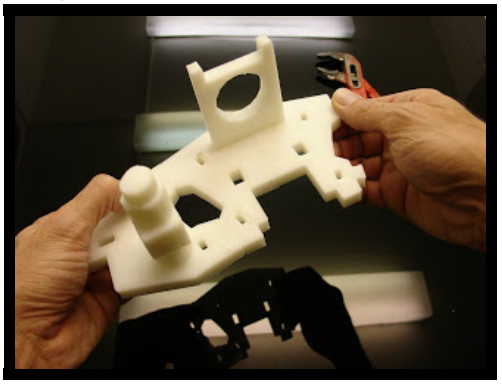
Remove the pre-built support under "PistoBaseV4"
Make sure "PistonClaviV2" can run freely inside. If your prints are a bit too tight you can ease it with grease. I had to fine tune my printer for those parts to get the right setting.



Assemble together with your favorite pliers, "PistoBaseV4", "ClaviBackV1" and "HomPlatback+V1".
Make sure that "PistoBaseV4" can rotate smoothly.



Add "HomPlatback-V1"to "HomPlatback+V1"
Here you can see my favorit pliers in action.



Add "ThroatHoleV2" to "HomPlatback-V1"to "HomPlatback+V1"
"ThroatHoleV2" has been modified since this picture.

Jack Phillips posted an update 2 days, 11 hours ago

Head Connect to Torso. Using EZ Robot for programing interface for now. Printing arms and hands next. Not sure how to post video so here is the link. https://www.youtube.com/watch?v=czMIEDz9804&feature=c4-overview&list=UUNwIfeOZc-u4UbOx3bcqJHQ

Gael Langevin posted an update 2 days, 16 hours ago

To Fred and others:

https://groups.google.com/group/inmoov/attach/151d3d256a4108f0/spring%20tensioner1.jpg?part=4&authuser=0

This is how I see a spring added to the retraction tendon. In this set up we avoid forcing on the servo either way of rotation and it also avoid losing tension in the tendons.

Fred uploaded a new picture: 69.jpg 3 days, 17 hours ago

Fred uploaded a new picture: 71.jpg 3 days, 17 hours ago

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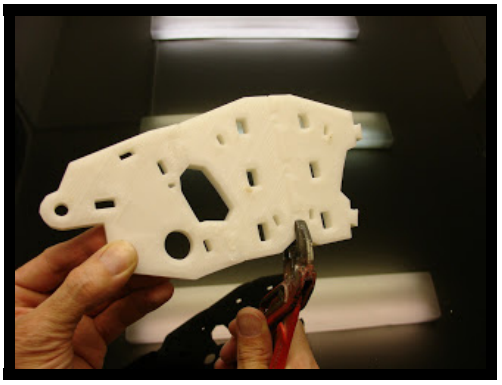
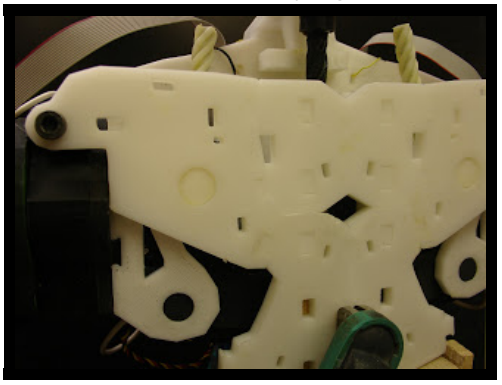
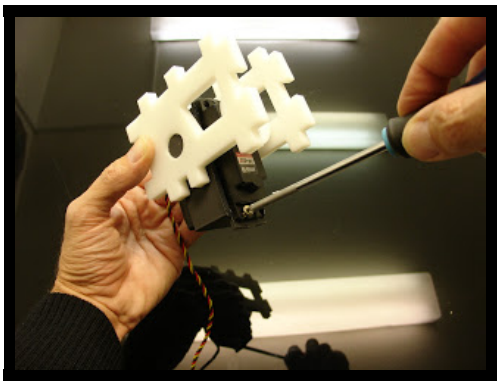


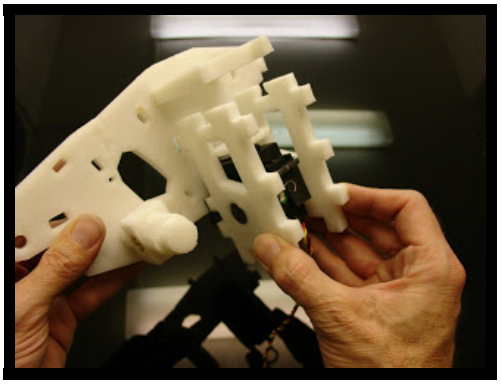
Time to assemble the front. Mount together "SternumV1" to "ClaviFrontV1".
Sorry this picture shows the first version I made but it's pretty close, check the next picture.



This is the shape you will obtain with the last version and the last "ThroatHoleV2" in the back.



Mount two "ThroatLowerV1" and "ServoHolsterV1".
This ser e middle of the torso, is for to move the head up and down and can be added later if y the holster should be set already in place.



Mount this assembly to the back assembly. Check on the picture the plots and the position of the servo. Front clips and back clips are different.

New wiring design for the hand

RECENT COMMENTS

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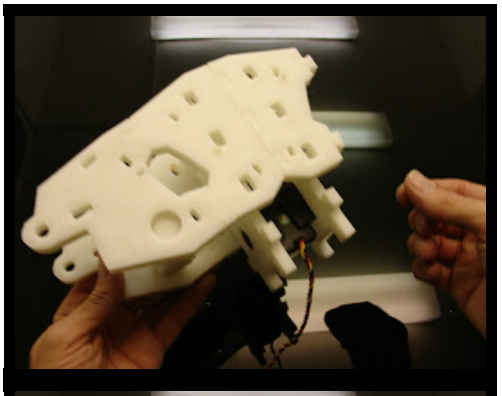
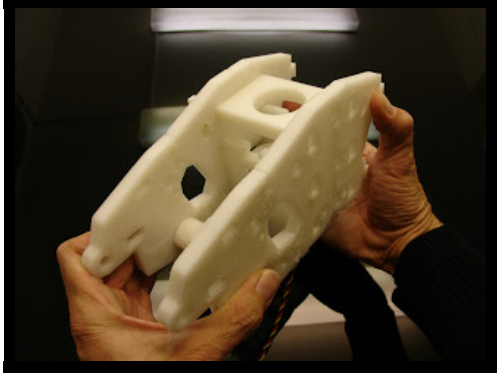
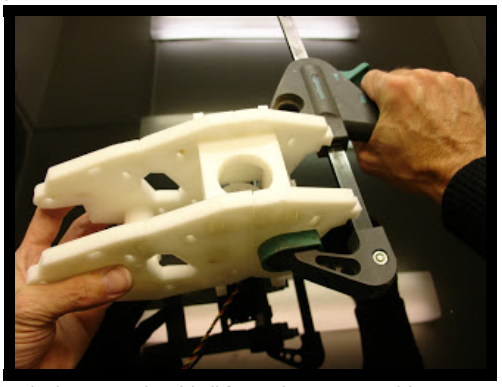
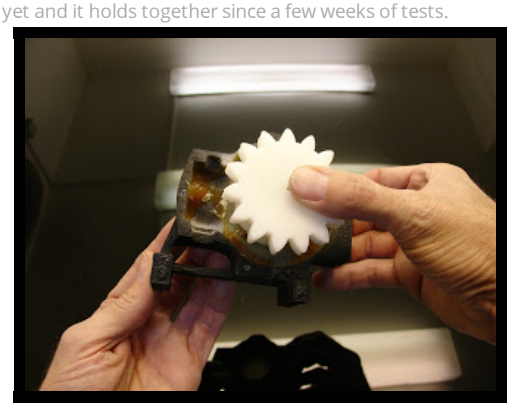




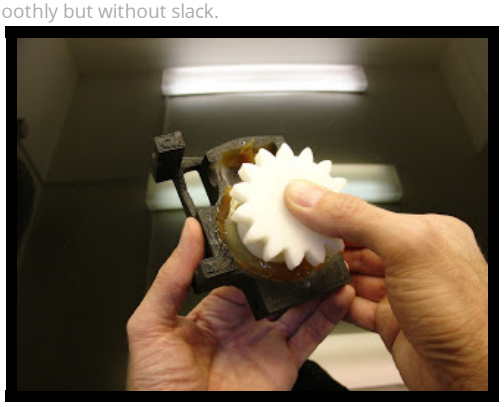
Add the front assembly to the rest.



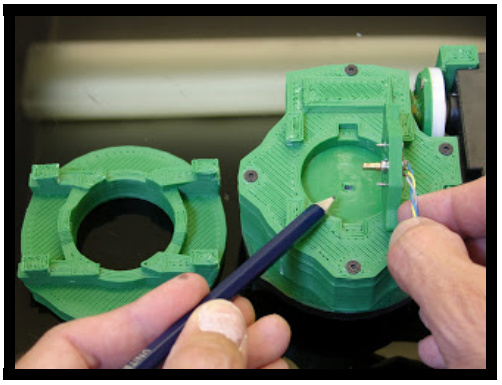
You can help yourself with clamps. It should all fit nicely. You can add acetone to glue parts together, but I haven't done it yet and it holds together since a few weeks of tests.



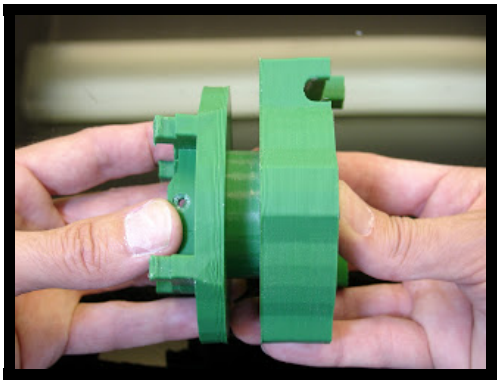
Now assemble "PivGearV2" to "PivCenterV1"
It should turn in it smoothly but without slack.



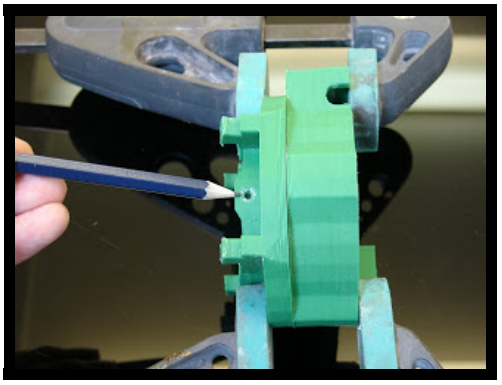
Using a fear amount of grease is a good idea.



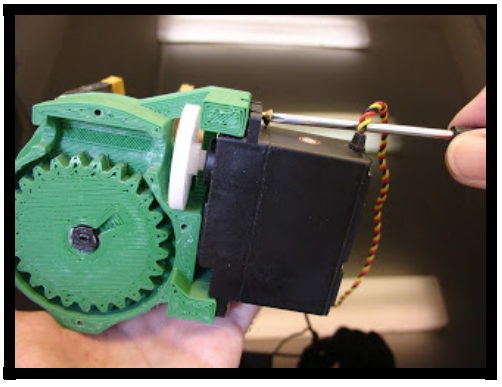
Ok, This section with green parts is the same than for the bicep so I re-used the pictures and changed the name of the parts. This picture is to show you what is the angle position of “PiCenterV1” compared to “PivMitV1”. Check the little rectangle hole where the potentiometer will go.



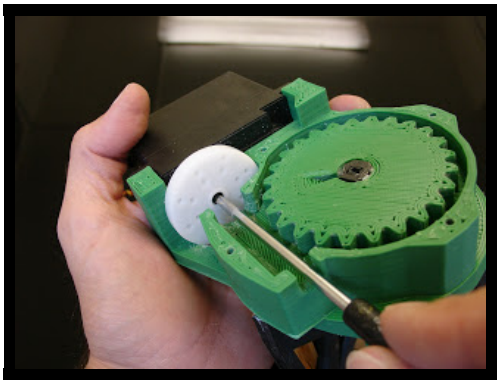
So keeping the same rotation angle, mount “PivmitV1” to “PivgearV1”.



I used clamps to make sure there wouldn’t be slack between all three parts during pre-screwing. Leave them like this, we will screw them definitly together in a further step.



Attach one servo to “PivcenterV1”. For to do so: mount but don’t tight fit the white actuator wheel.



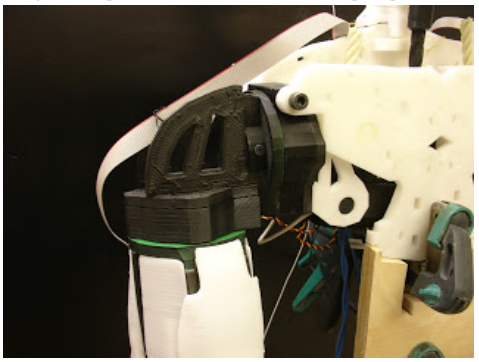
Once the servo is attached, you can tight the screw.

Clean up the support on “PivWormV1”

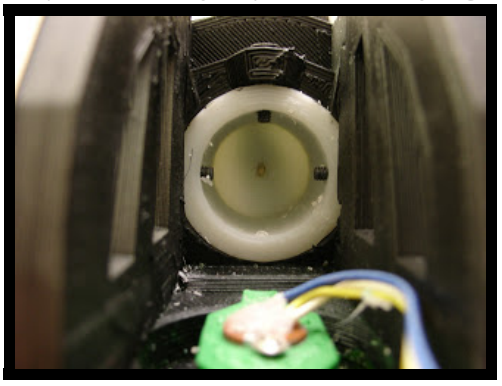
Mount “PivWormV1” to the actuator with 4 little screws, make sure they don’t come out behind the actuator, otherwise you have to cut them. I made it operate a few turns by plugging the servo on the Arduino. Then I cleaned up the dust created by the parts.

Before closing the case with “PivTitV1”, make sure you used a good amount of grease, every where on the gears. (sorry the servo is not mounted on this picture)

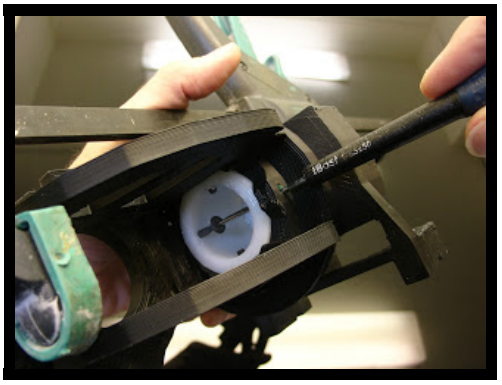
Mount the two “ConnectorV1” to “RotTitV1” and “PivMitV1”, making the junction between the bicep and the shoulder.
Glue with acetone all three parts together, and do it well, this is going to take a lot of pressure.



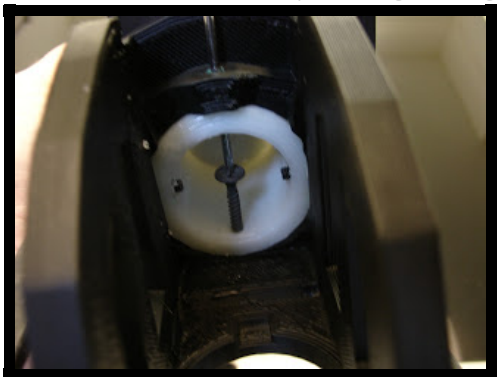
This is how they should be positionned. (sorry this picture is after everything is built)



Set “PivGearV1” in this rotation angle to “PivMitV1”. Here have a close look at angle of the hole of the potentiometer inside “PivGearV1”. (sorry the screws of the next step are already mounted on this picture)

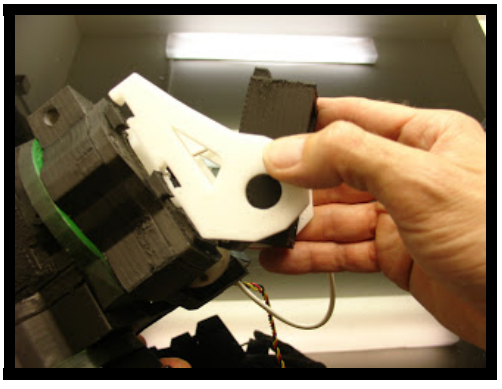


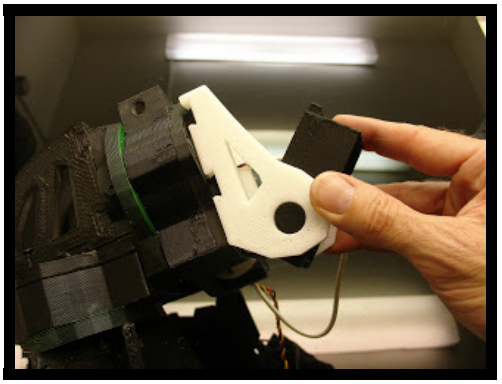
Use a longer screw to assemble “PivGearV1” to “PivMitV1” to “RotTitV1”
Use a clamp to make sure there is no slack between the parts during mounting.



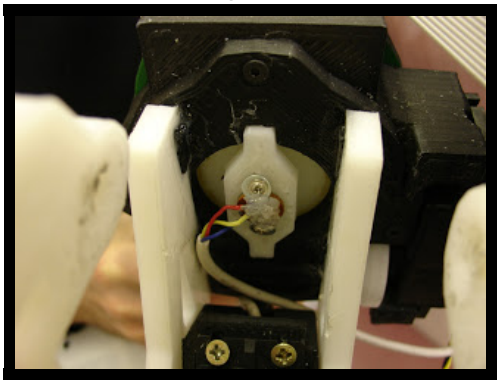
Then screw “PivGearV1” to “PivMitV1” on the sides and top.

Put together the two “ServoHolderV1” and “ServoHolsterV1”

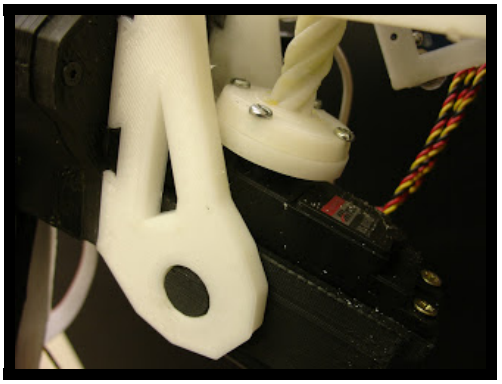




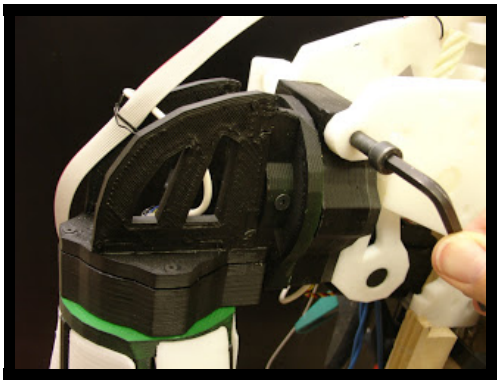
Mount the assembly to “PivTitV1”. Glue well with acetone, this is going to take pressure too, but make sure the “ServoHolsterV1” can rotate freely.

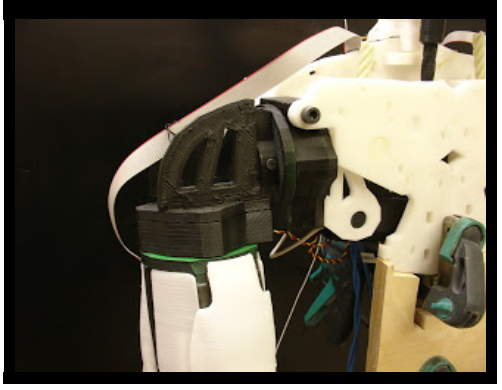


Set in the potentiometer into “PivPotentioV2” and clip it as is.
Here make sure the welding for the right shoulder. Red wire being on top, yellow in the middle, and blue on the bottom. I used hot glue on the weldings to avoid short circuits.

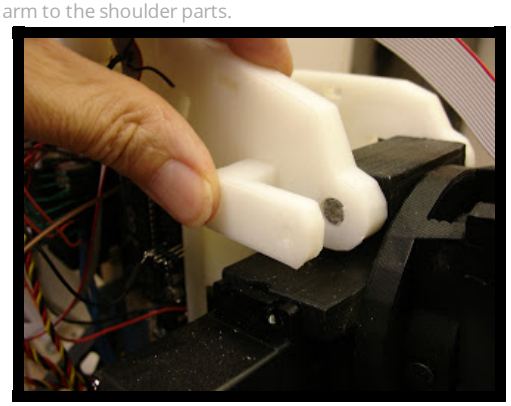


Mount with screws”PistonClaviV2” to the white wheel of your servo. set your servo into “ServoHolsterV1” with screws.

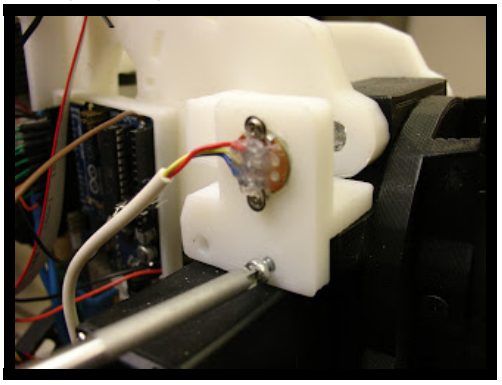




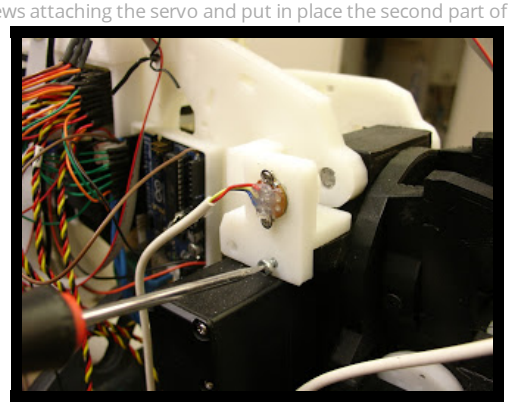
Attach the complete arm to the shoulder parts.



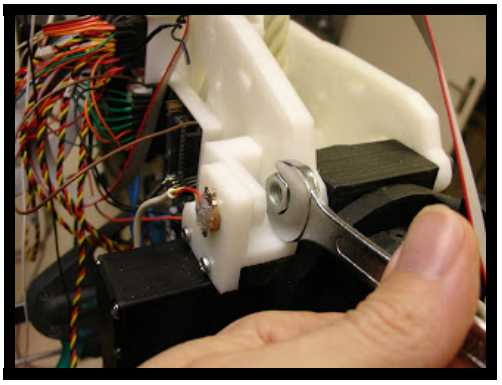
In the back of the shoulder clip the first part of “PivPotHolderV2” to “ClaviBackV1”



Remove the two screws attaching the servo and put in place the second part of “PivPotHolderV2”.



Use long screws to go through the servo holes. Fix the potentiometer in place as is.
You can see on this picture I used “arduinosupport” from the hand to set my Board.



Fix the bolt to complete the attachement of thearm to the shoulder.
You are now set to GO for your first test. One thing you should keep in mind is that the servo actuating “PistonClaviV1” should stay between 0 and 80 position, if you go further it will certainly break. Now if you use InMoov service from Myrobotlab, this is aready implemented to avoid breakage. Remember to do your test in a large space, and check your wires so they don’t get torn off.

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- Stun

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