Social Robot:building guide

1 Intro

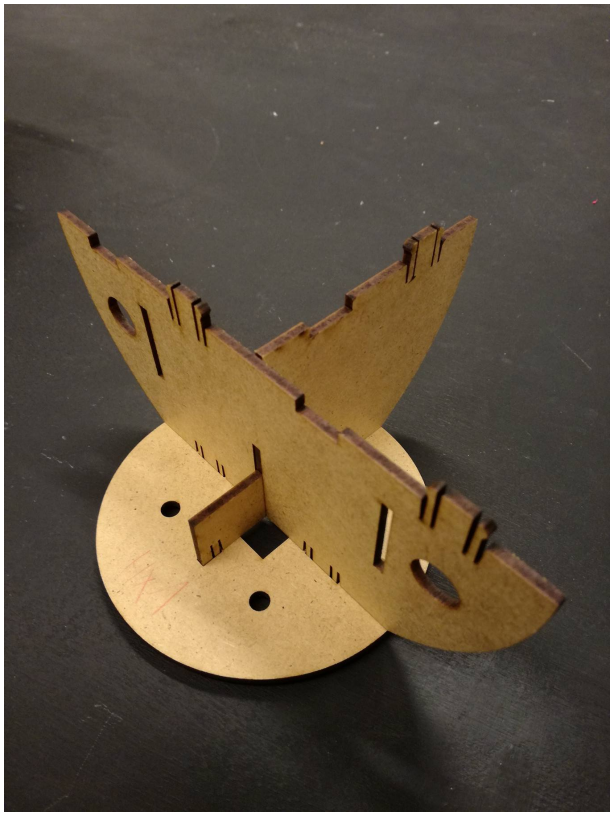
Welcome to this building guide! We're glad to see that other people are also interested in creating a social robot. We've put a lot of work in this project and we hope that it can inspire you and other people to design a robot as well. This pdf will guide you through the construction of the robot.

Through the pdf there will be a lot of pictures to help you. Most of the parts are in wood but some of them will be ABS. The wooden robot is a previous design. Some small changes have been made for the final ABS robot and those parts are replaced in the wooden construction. Don't worry, the files on github are from the final design and they will work perfectly. We wish you a lot of fun with the assembly!

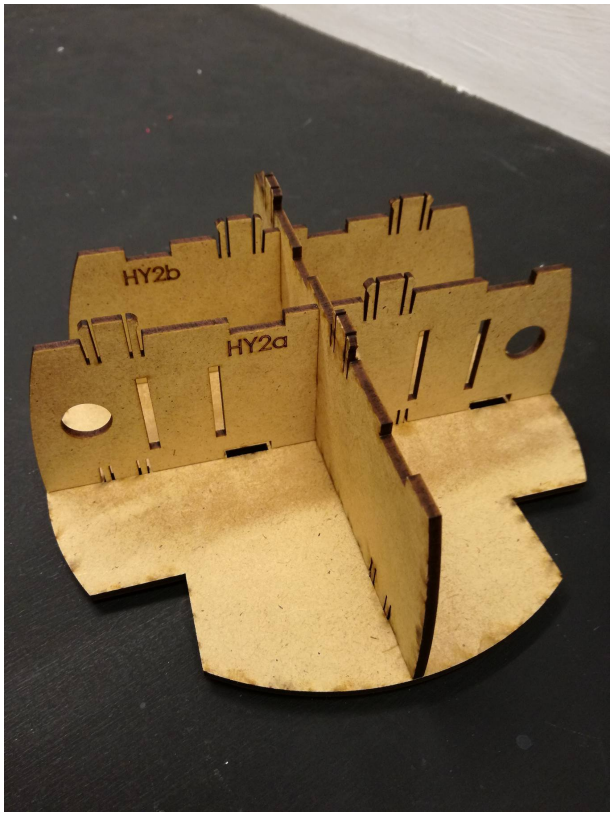
2 Construction

2.1 Head

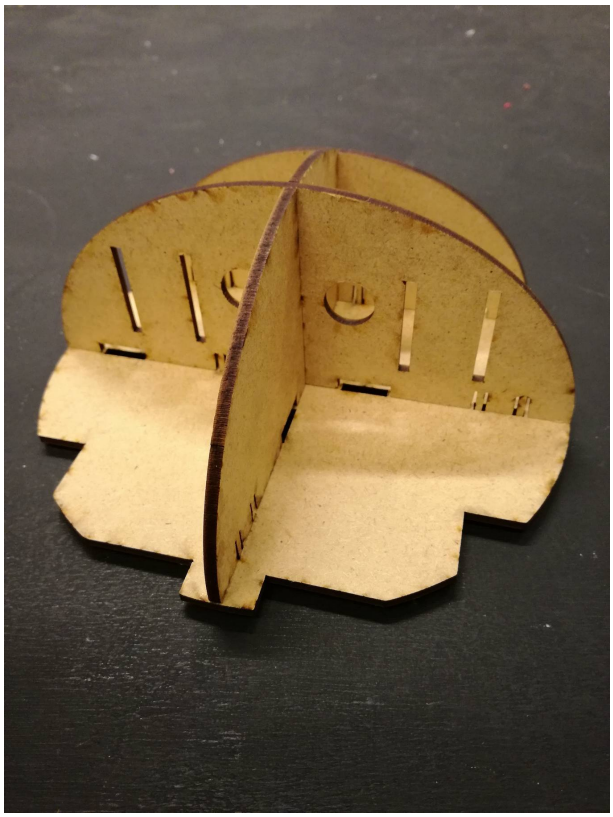
number of parts: 11



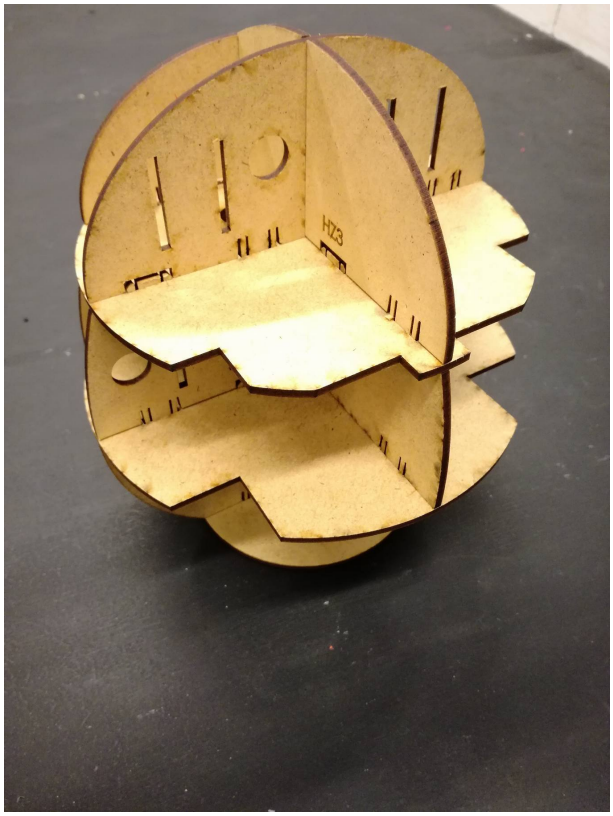
Fit HX1, HY1 en HZ1 together like you can see in the picture.



Attach HX2, HY2a, HY2b and HZ2.



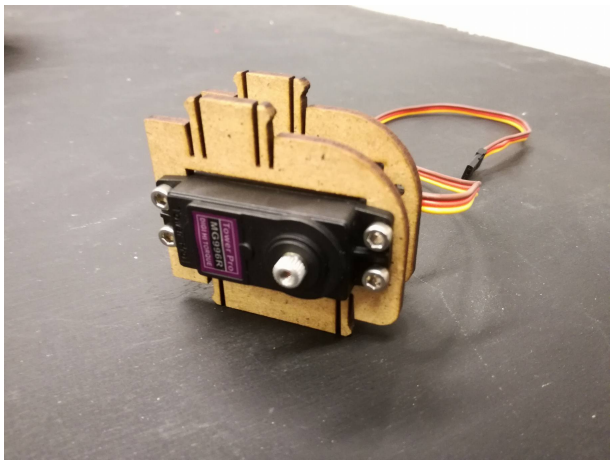
Put HX3, HY3a, HY3b and HZ3 together.



Finalize the head by clicking the three layers together.

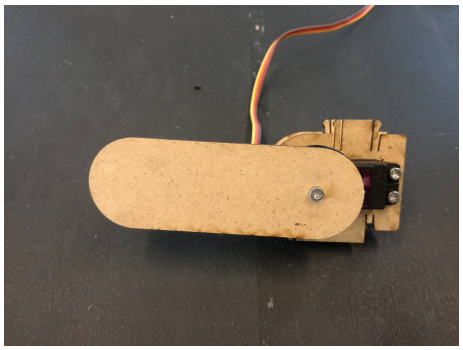
2.2 Arms

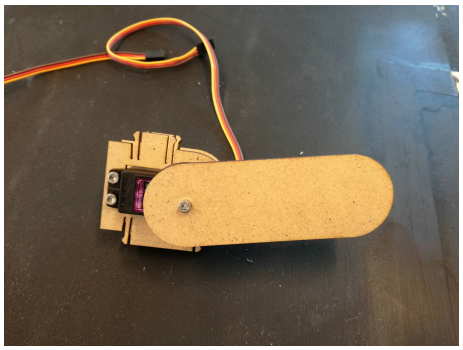
number of pieces: 6
servo: 2 x *TowerPro MG966R*
screws: 8 x *M3*x*6* & *2* x *M3*x*10*



Add the Ba-components to the servo using 4 M3x6 screws.

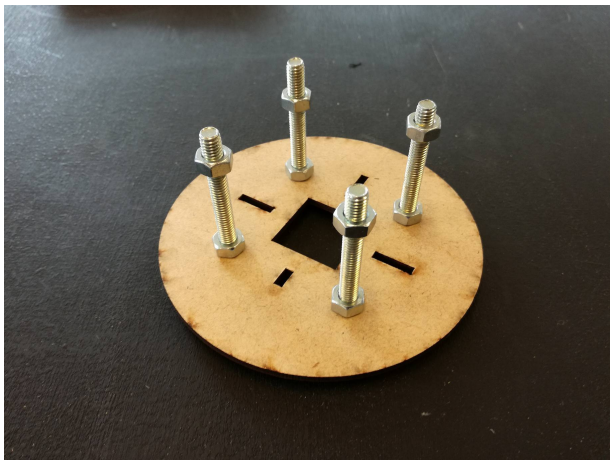
Use the plastic part delivered with the servo (see photo) to screw (M3x10) the arm to the servo. Go over the steps again to make the other arm. Be careful, the servo should be facing the other direction:



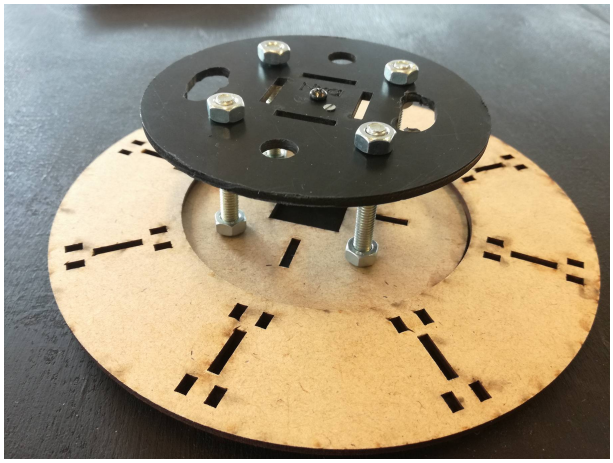


2.3 Neck

pieces: 1 neck piece + 1 head piece (HX1) + 1 body piece(B1)
screws: 4 x *M6x50*
nuts: 12 x *M6*



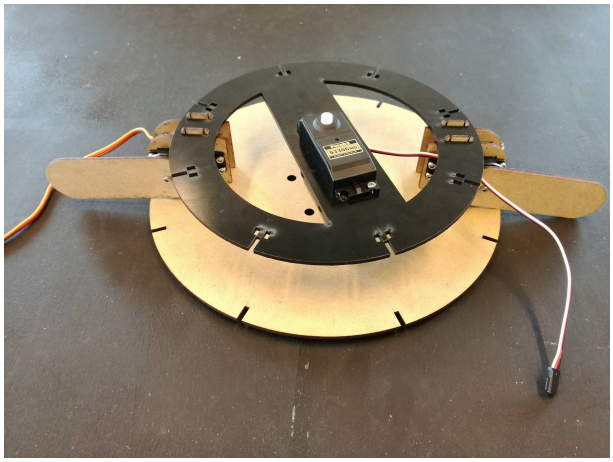
Detach the HX1 piece of the head and start by adding the screws. Use the nuts to lock everything on to its place.



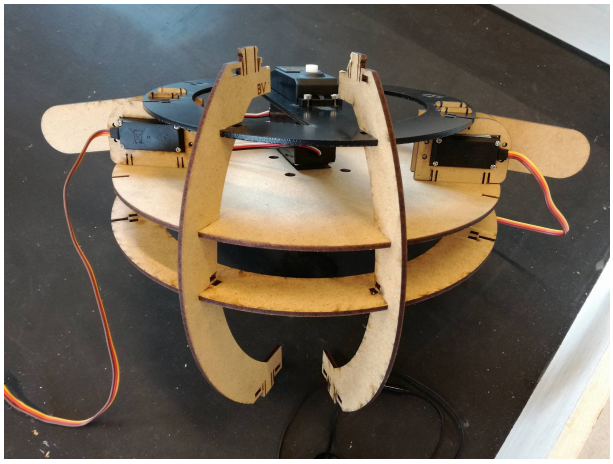
Place B1 over the screws and use the 8 remaining nuts to attach the neck piece.

2.4 Body

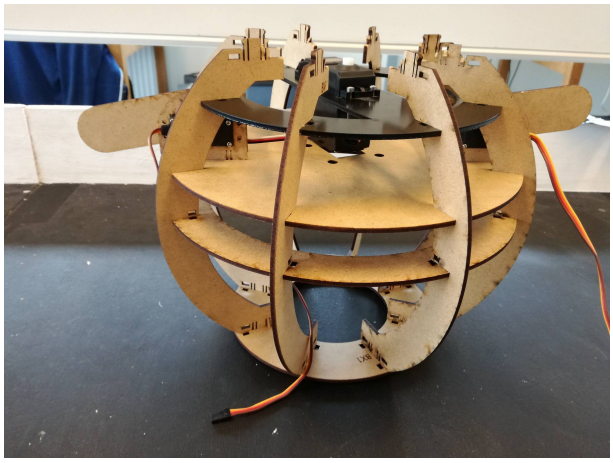
number of pieces: 13 body pieces + 1 neck piece
servo: 1 x *futaba S3306MG*
screws: 4 x *M3x20*



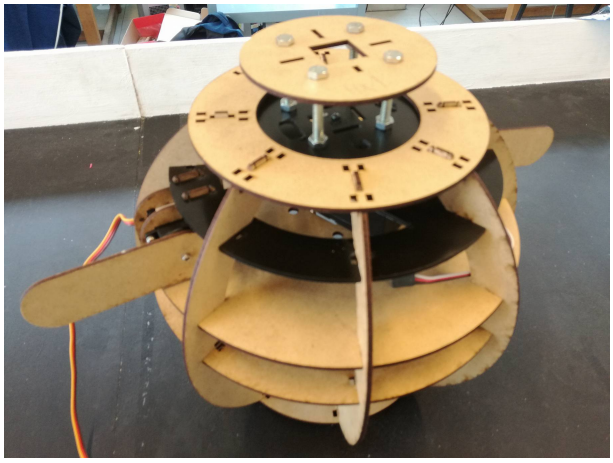
Start the construction of the body by taking the b3 and b6 pieces. Add the arms like it's shown in the picture. The servo has also been attached by using 4 M3x20 screws. You can also use other lengths of screws (minimal 10mm), but we had these laying around.



Take the B5 piece and all of the B2 pieces (8). Use the B2 piece to add the B8 piece to the construction. Do this for all 8 of the B2 pieces.



The B2's can be hold in place at the bottom by using B4.

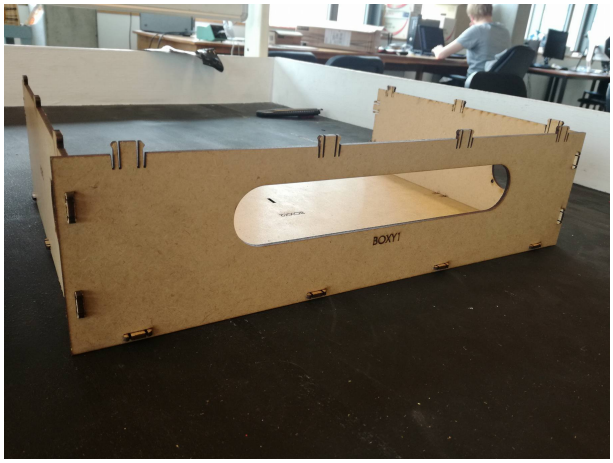


Add the neck to the servo by using the screw thats delivered with it and finalize the body by adding B1 that's part of the neck.

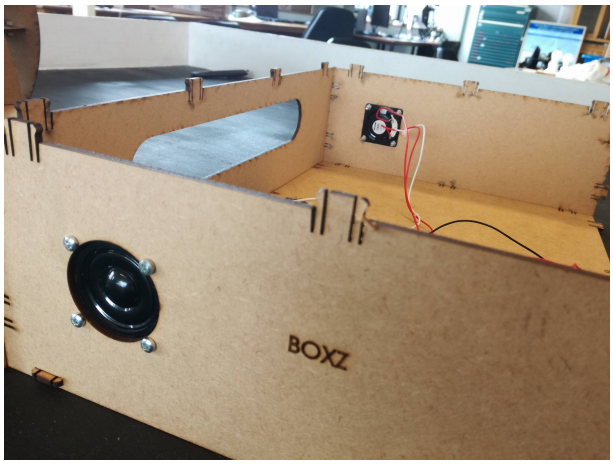
2.5 Optional: Box

number of pieces: 8
screws: 8 x *M3x12*
speakers: 2 x *4,0cm miniature speaker 8 ohm* [1]

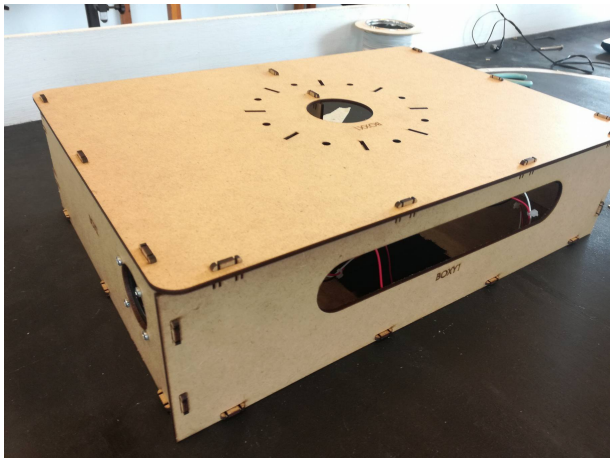
[1] link: https://www.gotron.be/licht-geluid/geluid/luidsprekers/mini-luidsprekers/4-0cm-miniatuur-luidsprelker-8-ohm-1.html



Attach BOXZ1 and BOXZ2 to BOXX2.When you have done this, you should also add BOXY1 for the stability.



Connect the speakers to the box. Use the 4 screws at each side.

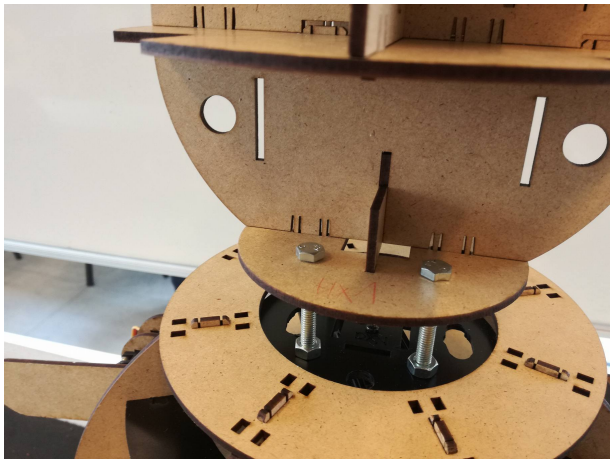


2.6 ONO-modules

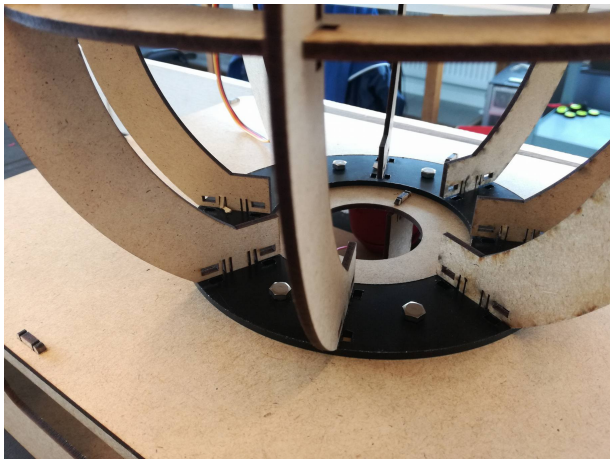
For the construction of the eyes, mouth and eyebrows, you should look at this site: https://github.com/OPSORO/opsoro-ONO-docs/wiki

2.7 Final construction

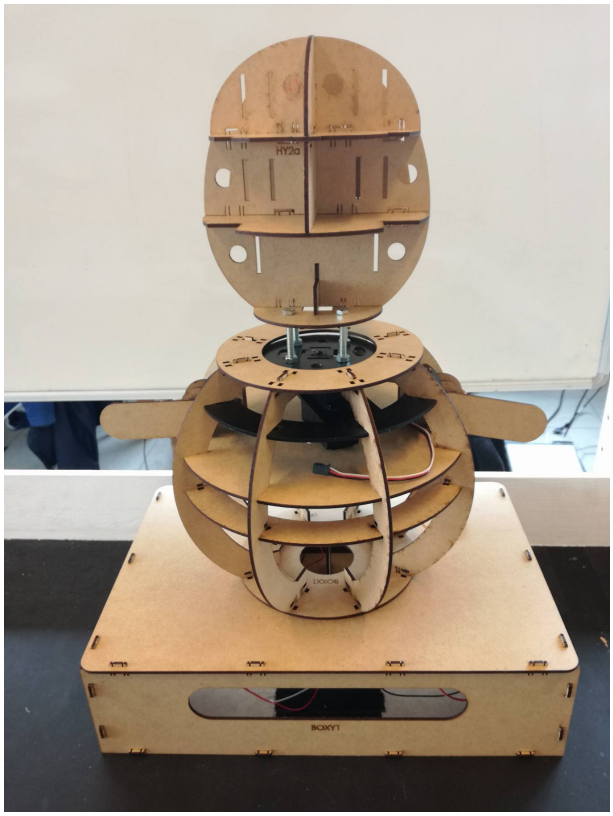
servo: 1 x Futabe S3306MG



Attach the head to the body using the *clicksystem*. For extra solidity, you can make extra holes and fasten them with fasteners.



Now attach the body to the box using 8 M5x20 screws.



Now you can add the eye-, mouth- and eyebrow-modules!