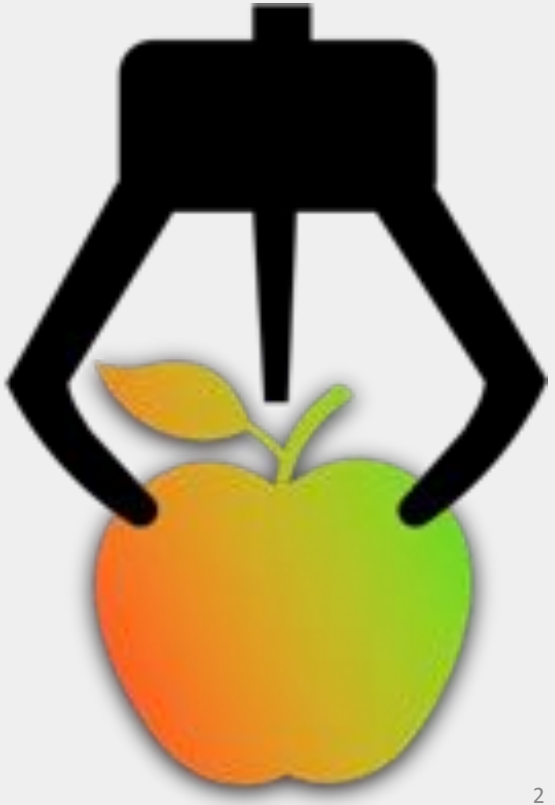
ALL ONE ROBOTICS

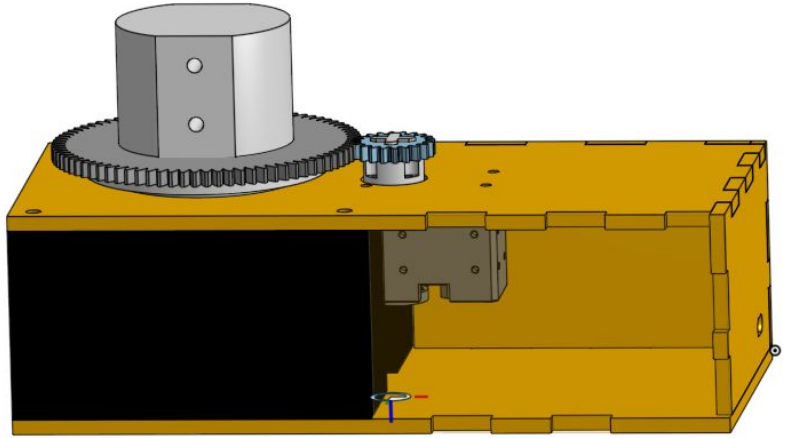
Assembly Plan

Robotic Arm

BASE



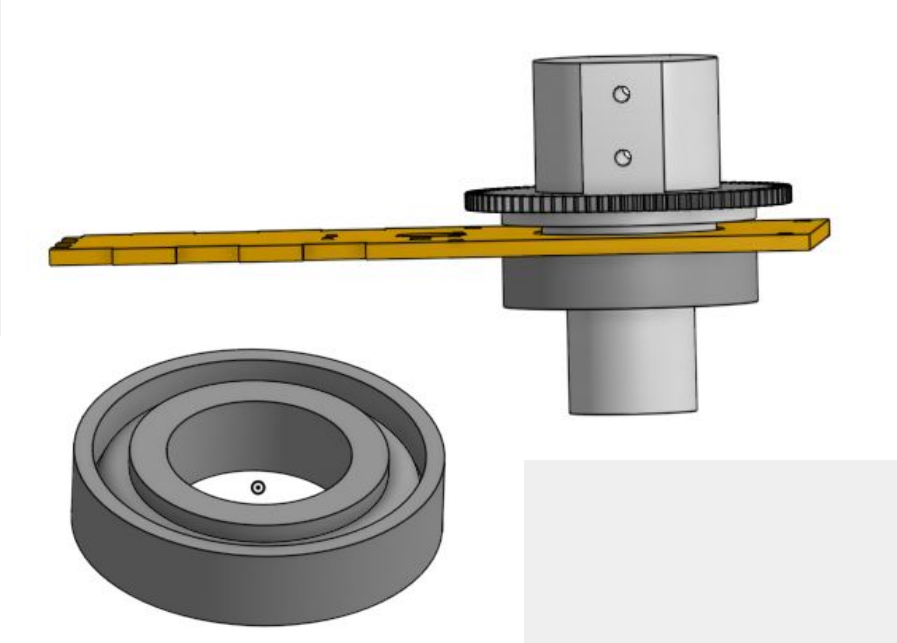
Base - Parts



Includes :

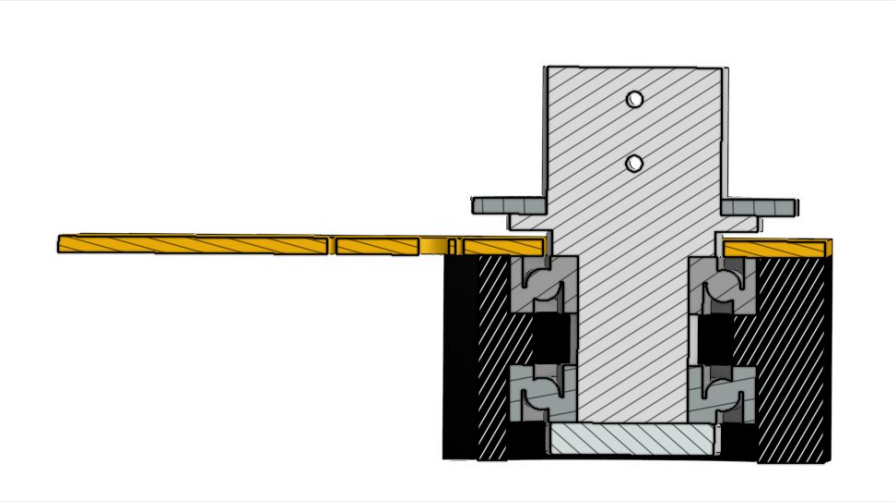
- Base Top and Bottom and Site wooden Plates (5)
- Electronics
- Motor XL-430
- Gears named BASE (small and big)
- Support for the small gear
- Rotary shaft Base
- Complement for the rotary Shaft
- Ball Bearings SKF 7208 (2)
- Cover Button for the shaft
- Screws M3 x 40(2)
- Screws M2 x 12(4)
- Screws M1 x 8 (4)

Base - Assembly (1)



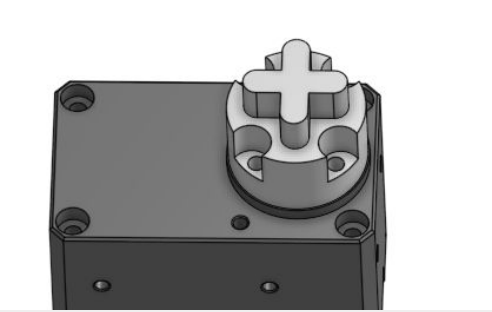
1. Take the rotary shaft for the base.
2. Mount the greater gear onto the shaft
3. Put the shaft from the upside on the top of the base.
4. Take the ball bearing and mount it from the bottom of the shaft facing the side with the bigger ring on the inside(on the small photo) facing up just to the point that the ring touches the surface of the shaft.

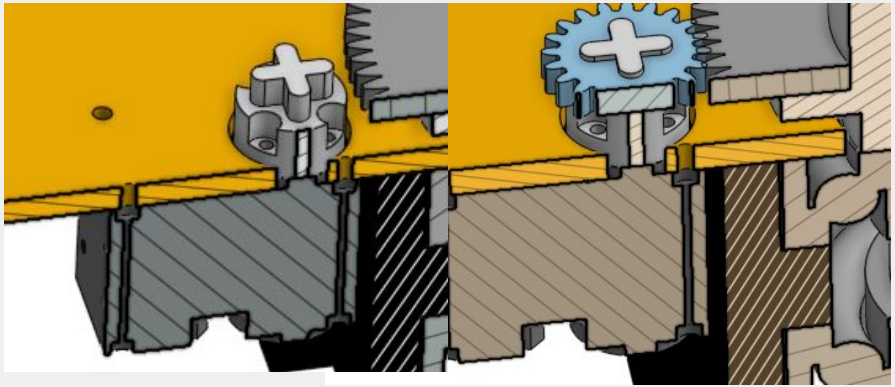
Base - Assembly (2)



5. Insert the shaft into the complement, by entering through the side with the less deep great hole.
6. fix the top plate of the base on the complement with 4 M3 screws, using the the predrilled holes.
7. Take the other ball bearing and place it on the shaft, by facing the greater ring on the outside on top.
8. Place the cover button on the lower end of the shaft and fix it with the two M3 screws. Now the the shaft should turn smoothly within the complement.

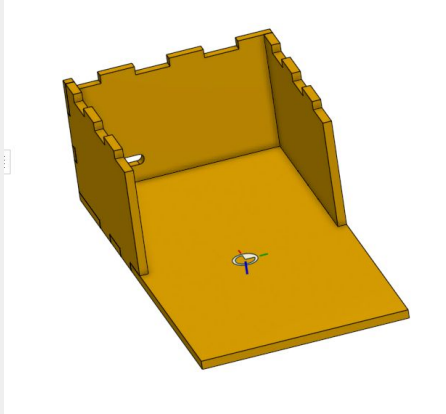
Base - Assembly (3)

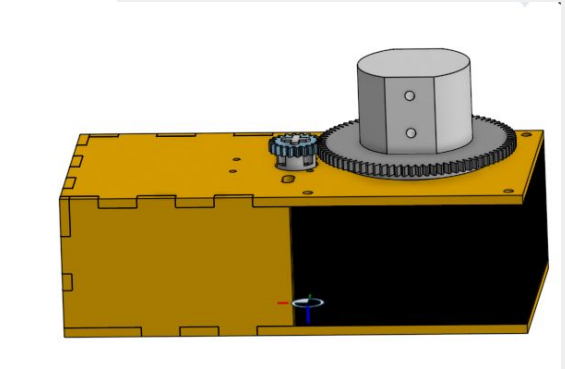




9. Take the motor
10. Place the support for the gear onto the turing plate of the motor and fix it with 4 M2 x 8 screws.
11. IMPORTANT : Place the motor in line with the predrilled holes of the top of the base and fix it with the 4 M2 x 12 screws.
12. Place the small gear on top of the support.

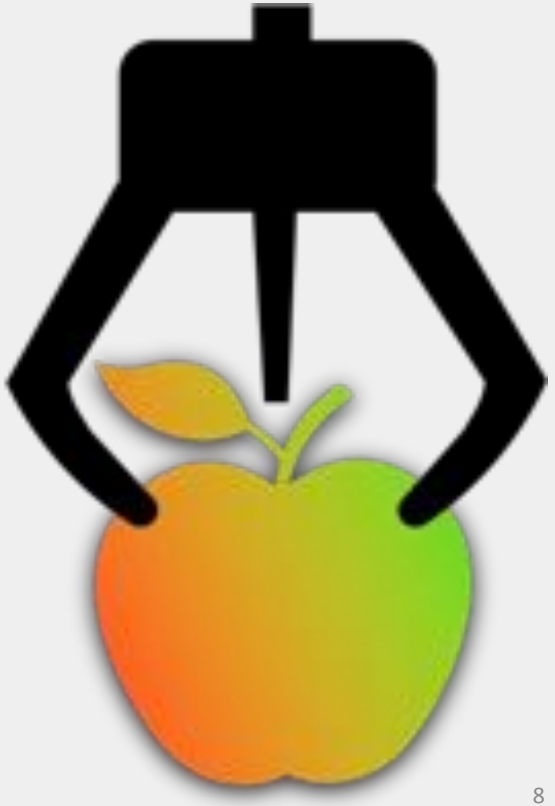
Base - Assembly (4)



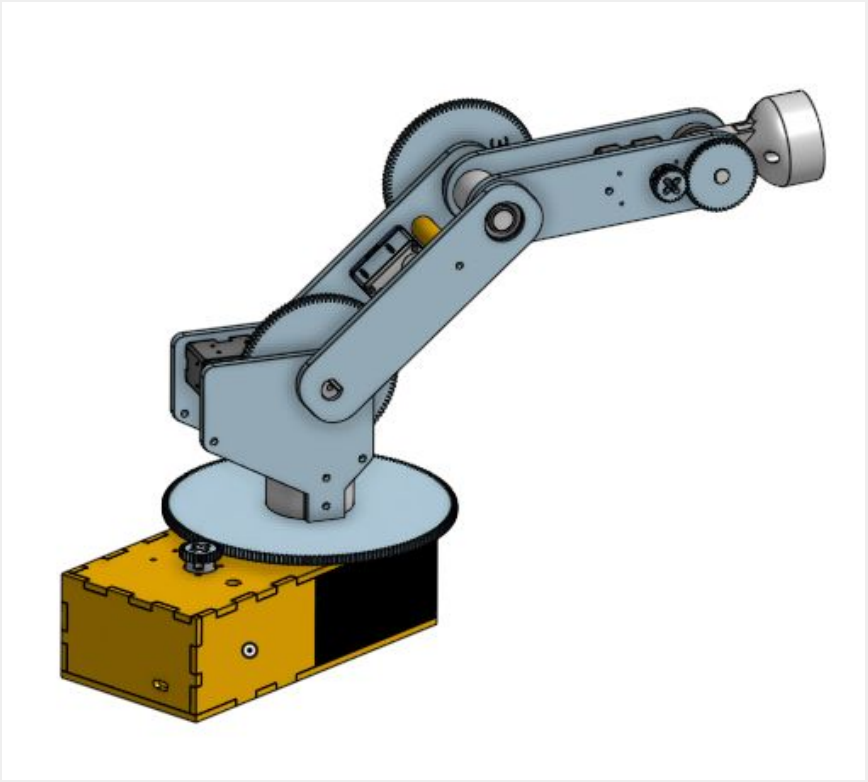


13. Connect the three walls and the bottom of the base with the precutted teeth
14. Insert place the electronic boards in the booth of the base and connect them with the Motor using a cable and take the power supplying cable through the exit in the wall
15. Place the the top and the shaft onto the base using the pre-cutted teeth. The Base is now complete.

ARM



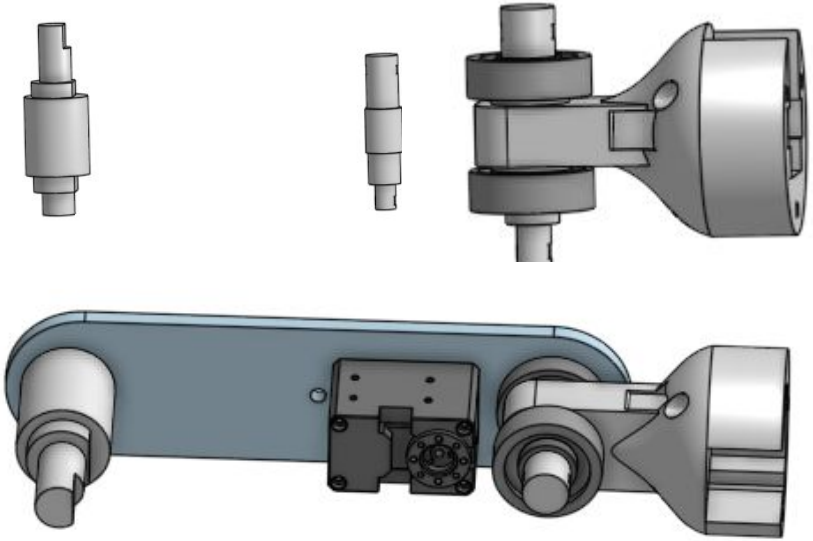
ARM - Parts



Includes :

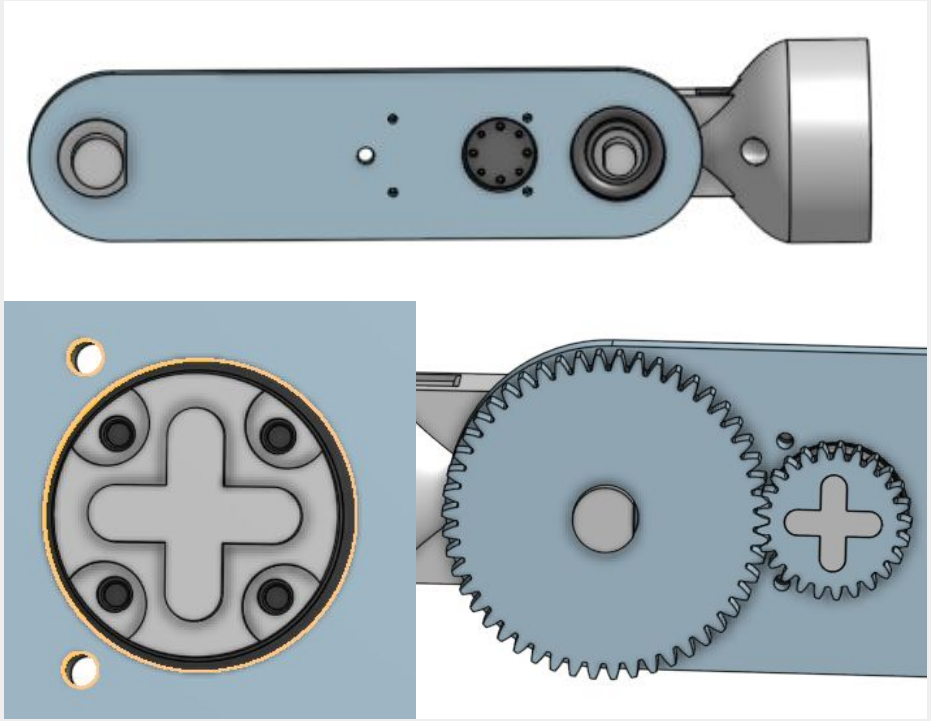
- Arm planks (4)
- Planks for the shoulder (2)
- Rotary Shafts (3)
- Remaining Gears (6)
- Supports for the small gears (2)
- Motors XM-430, XC-430 and XL-430
- Ball bearings SKF 7202 (6)
- Piece for the wrist
- Bolts for the shoulder (2)
- Screws and Nuts

ARM - Assembly (1)



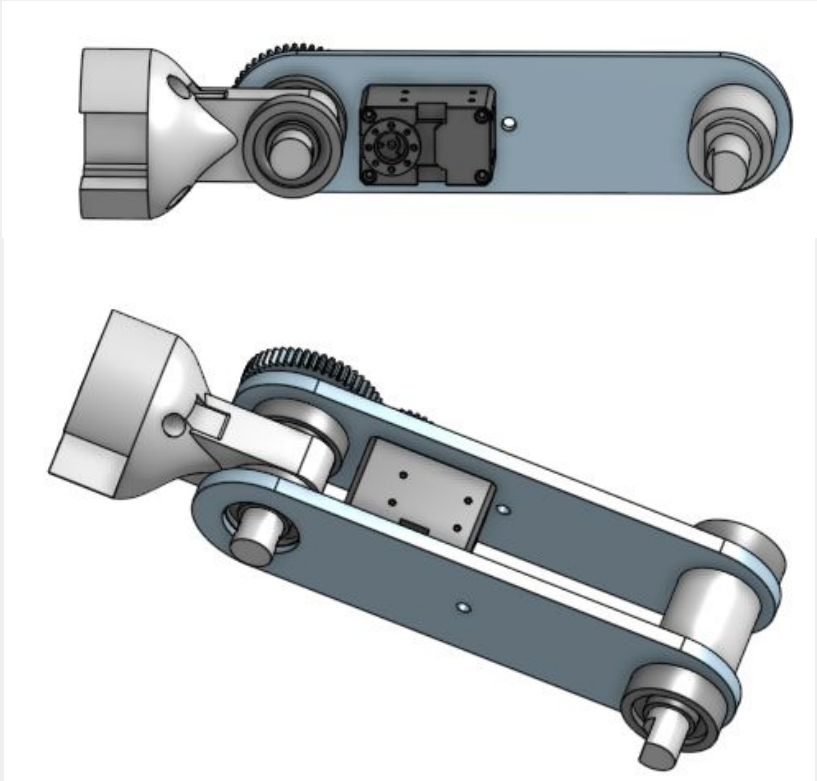
1. Take the rotary shafts for the elbow and the wrist
2. Mount the piece for the wrist onto the little shaft (might need a little force).
3. Put two ball bearings on the same shaft with each one facing the greater inner ring in direction of the wrist
4. Screw a XL-430 motor onto the shorter arm with a the corresponding holes on the side with the bigger hole on the right, using 4 M2 x 12 screws.
5. Install the shafts in the arm like on the third photo.

ARM - Assembly (2)



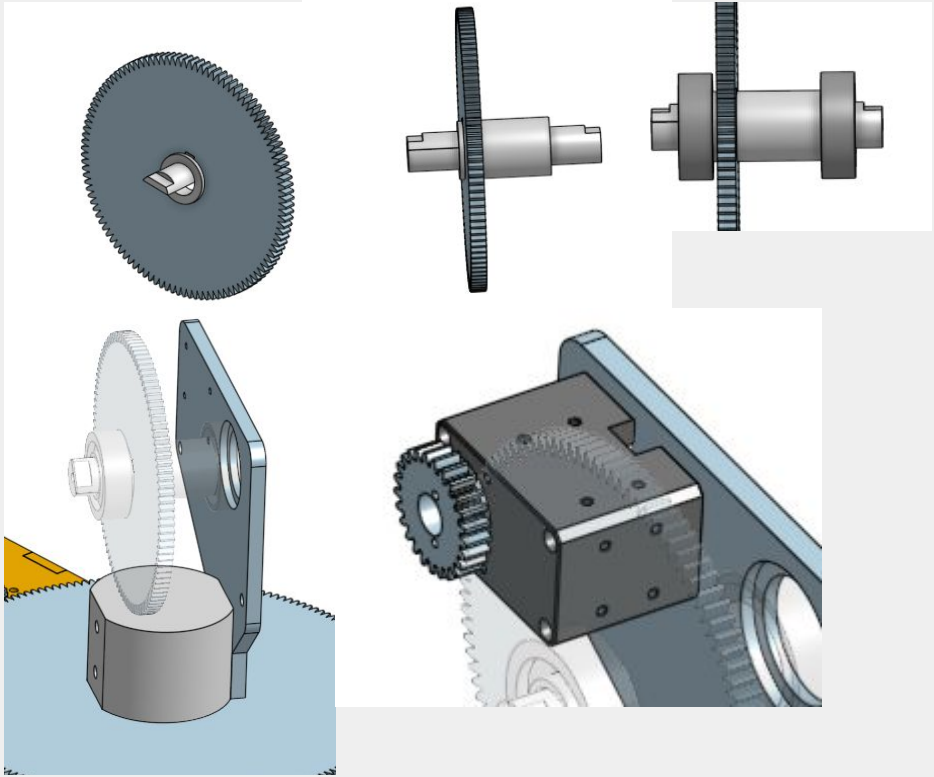
6. Turn the arm by 180 degree to the other side.
7. Pass a screw M8 x 30 through the hol ein the middle of the arm
8. Pass the support for the gear on the motor and fix it with 4 M2 x 8 screws.
9. Put the two gears on the shaft and the support.

ARM - Assembly (3)



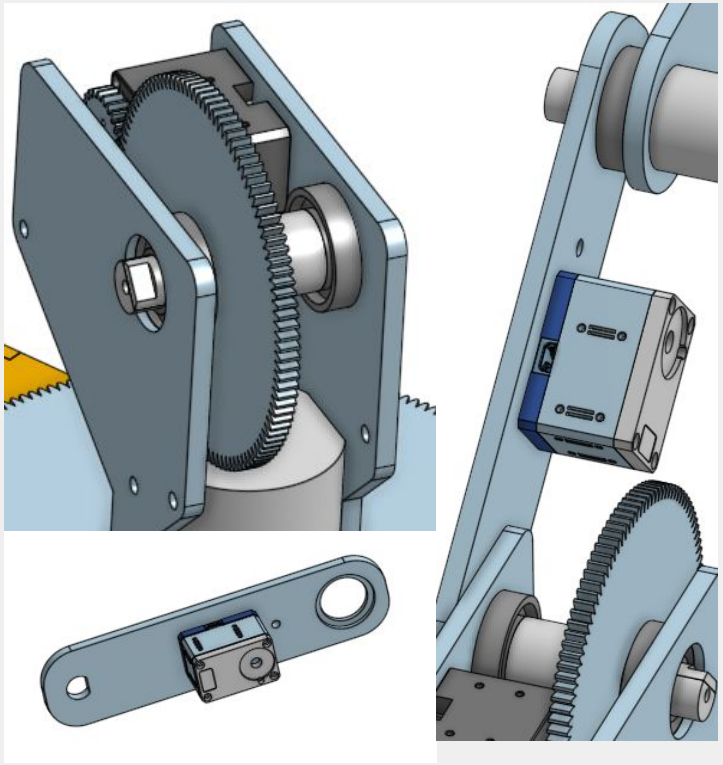
10. Turn the arm back to its original position.
11. Fix the screw in the middle with a nut and put a second one loosely on it.
12. Close the arm with the second plank and fix it using the loose nut and a third one from the other side to fix the plank to that it straightens perfectly. Take two ball bearings and place them on the longer shaft, with the greater inner ring facing to the middle of the shaft. The Forearm is complete now.

ARM - Assembly (4)



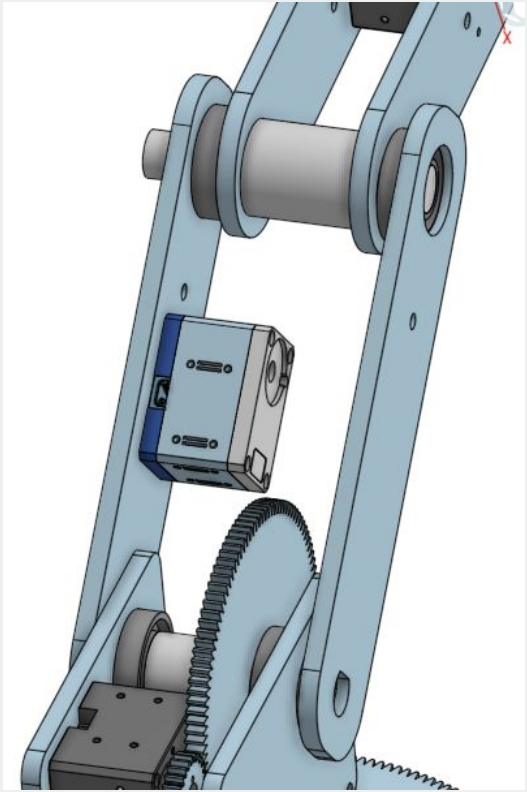
10. On start now the shoulder of the arm. Take the big gear and put it on the corresponding adapter.
11. Stick it on the remaining rotary shaft.
12. Moun two ball bearings with the greater inner ring facing to the middle of the shaft.
13. Take back the base. Place the left shoulder plank on the great rotary shaft with the bigger hole facing to the inside and lock it with two bolts.
14. Fix the remaining XC-430 motor on the plank with 4 M2 x 12 screws.
15. Fix the small gear on the motor, using 4 M2 x 8 screws.

ARM - Assembly (5)



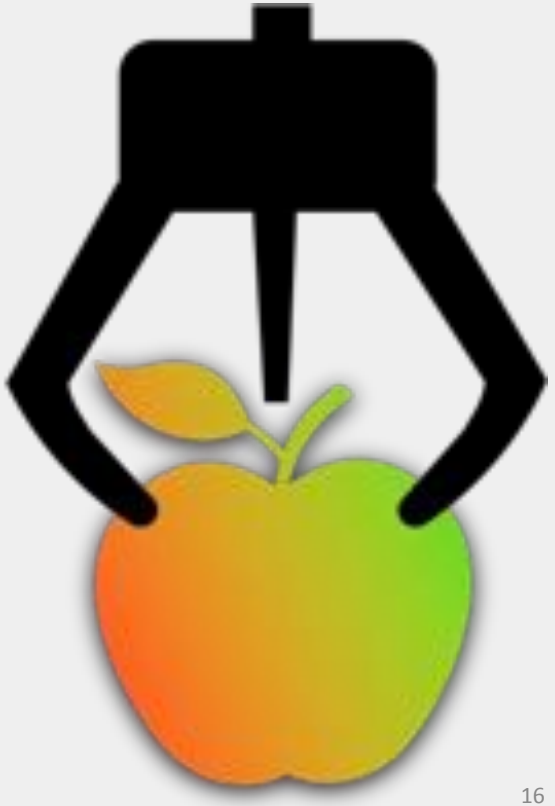
16. Take the shaft and place it on the shoulder like shown on the picture, then close the shoulder with the second plank. fix the bolt in the base with to nuts. You can add additional bolts in the left holes to and stability. The shoulder is complete now.
17. Take the XM-430 motor and fix it with 4 M2 x 12 screws on the remaining arm plank which has holes for it, on the side with the bigger hole on the right. Stick a M8 x 30 screw from the other side in the hole next to the motor. Fix it with a nut and put a second one loosely onto it.
18. Use the plank to connect the forearm with the shoulder.

ARM - Assembly (6)

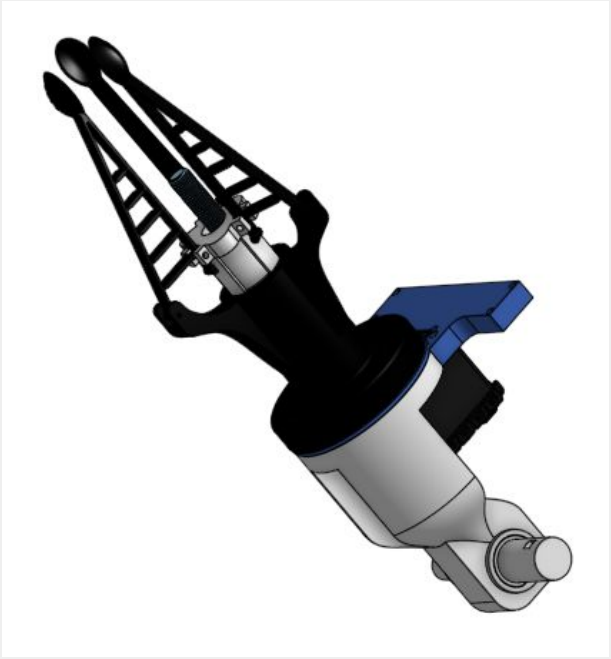


16. Close the arm with the second plank and fix it using the loose nut on the screw and another one from the other side.
17. Use the remaining support for the gear, 4 M2 x 12 screws and the 2 gears to connect the motor with the elbow. The arm is now assembled.

HAND



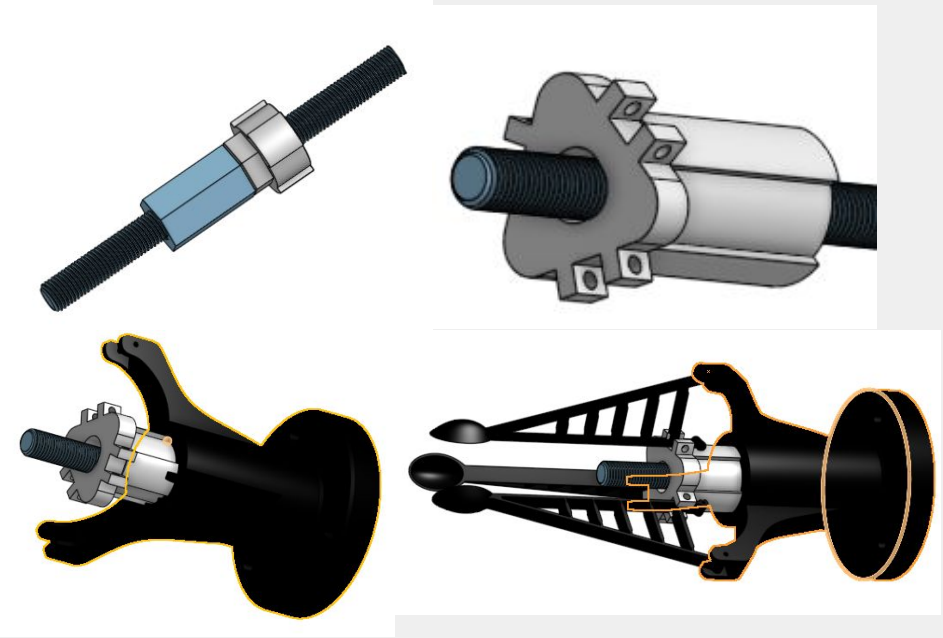
HAND - Parts



Includes :

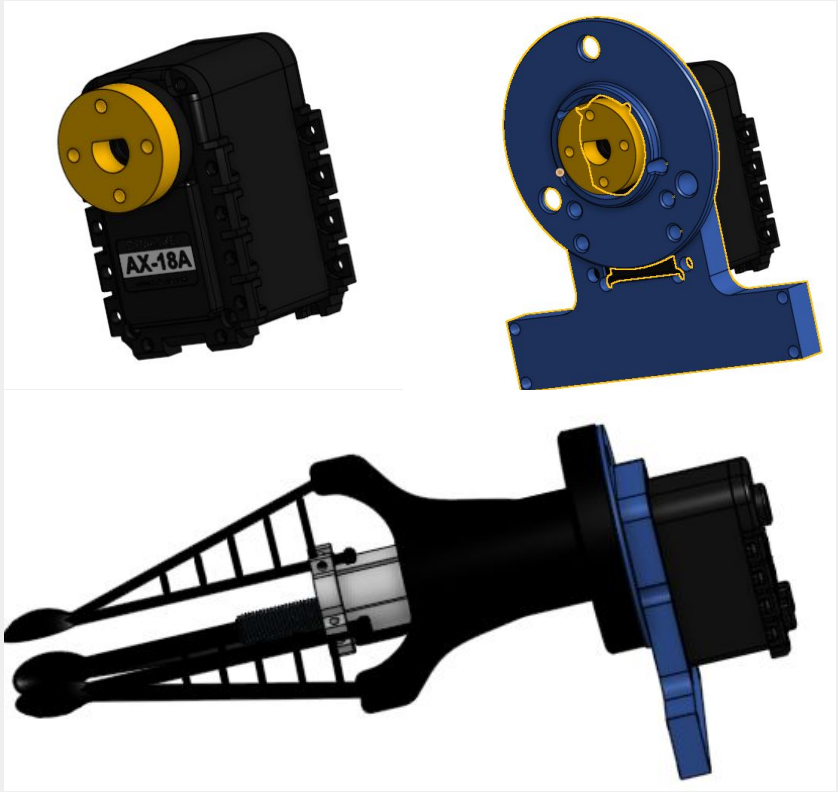
- Fingers (3)
- Main piece Hand
- Rod Hand
- Nut for the rod
- Sleeve for the rod
- cover rod
- Connection rod motor
- Motor AX-12W
- Support for the camera
- Screws and Nuts
- Wire

HAND - Assembly (1)



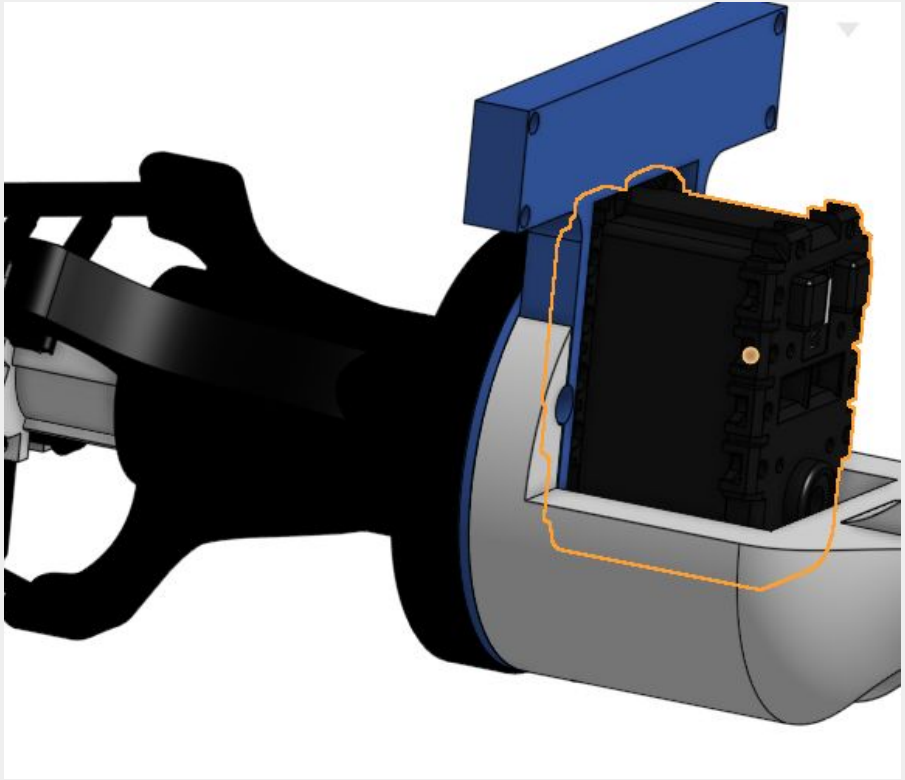
1. Put the nut and the sleeve for the hand on the rod and then cover the nut with the cover for the fingers
2. Push the rod into the main body of the hand
3. Mount the fingers onto the hand, connecting them with the main body and the cover using the wire.

HAND - Assembly (2)



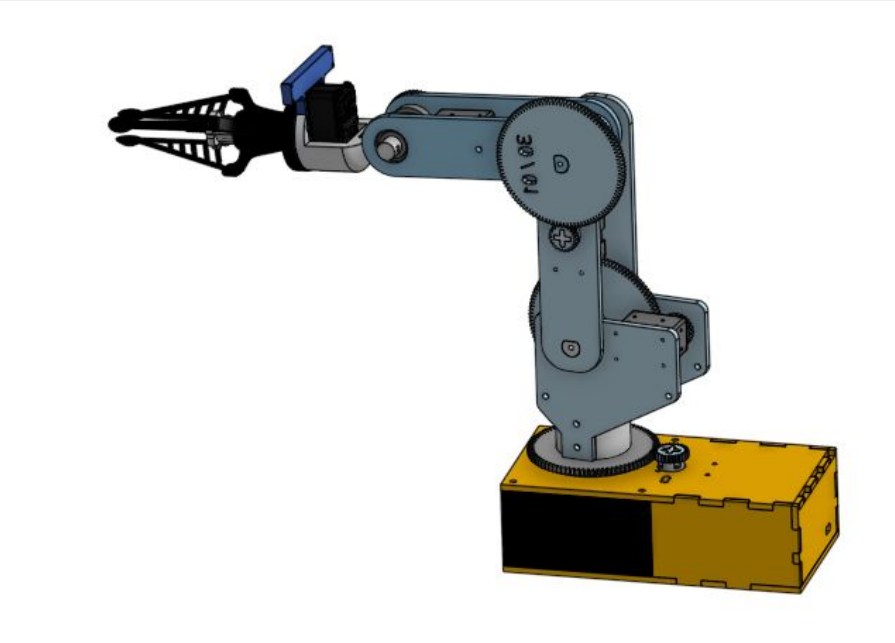
4. Take the motor and fix the two adapters for the rod onto it, using 4 M2 x 12 screws.
5. Fix the motor on the support for the camera, using 4 M2 x 12 screws.
6. Connect the motor with the hand, make sure to stick the rod into the adapter and to align the holes for the bolts.

HAND - Assembly (2)



7. Now fix the whole hand on the wrist of the arm using 3 bolts with respective nuts.
8. The assembly is completed now.

Complete arm



The arm is completed now and should resemble to the picture on the left.