

Assembling Haptic Robotic Arm and Haptic Suit



Research | Invention | Execution

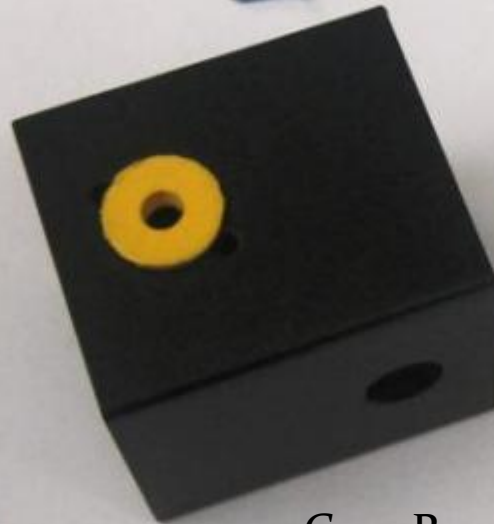
The Final Haptic Robotic Arm...





Bushing

6mm Iron Rod



Disc or Wheel



Spur Gear

Gear Box



Worm Gear



Dead Axel



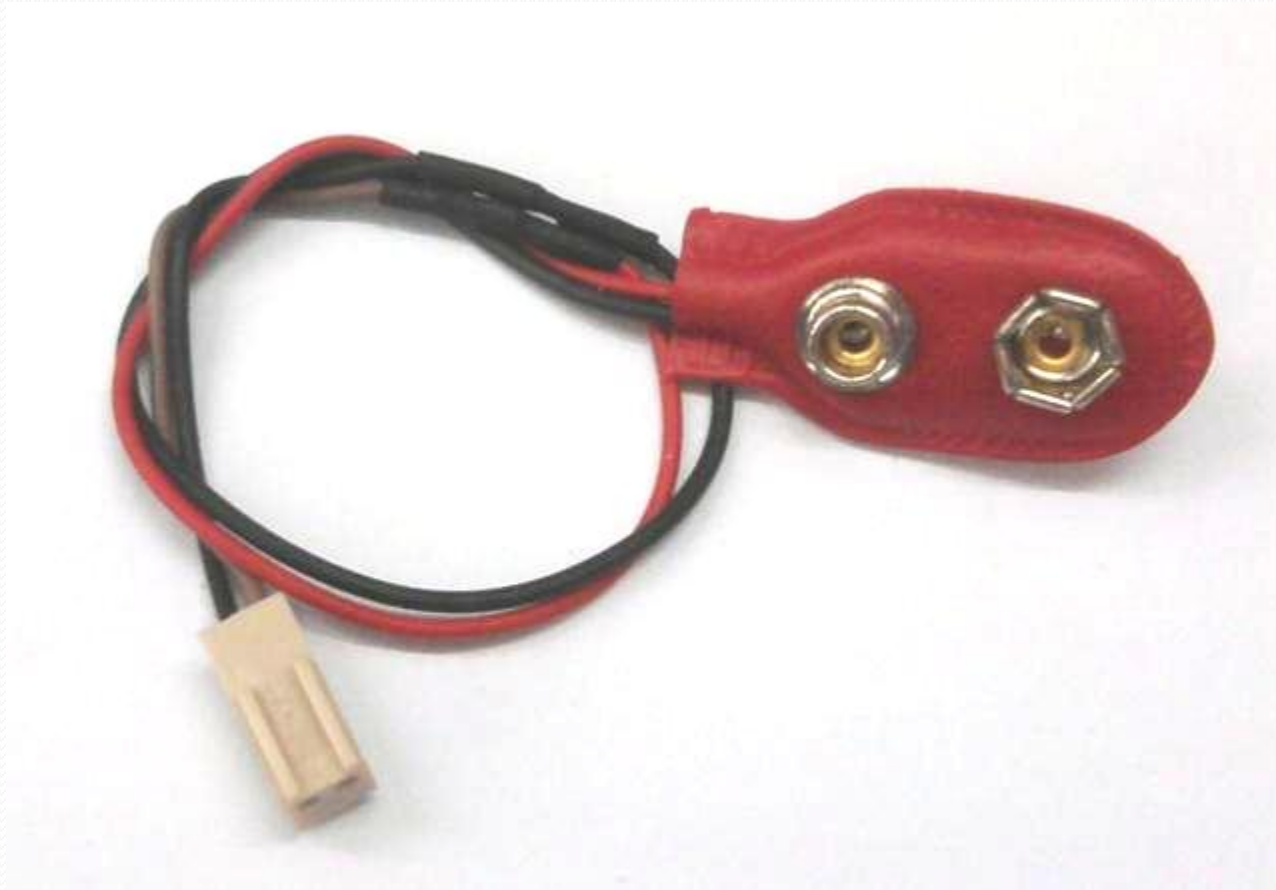
DC Motors



Battery connector with double snapper



Battery connector with single snapper



Serial cable 9-3 pin



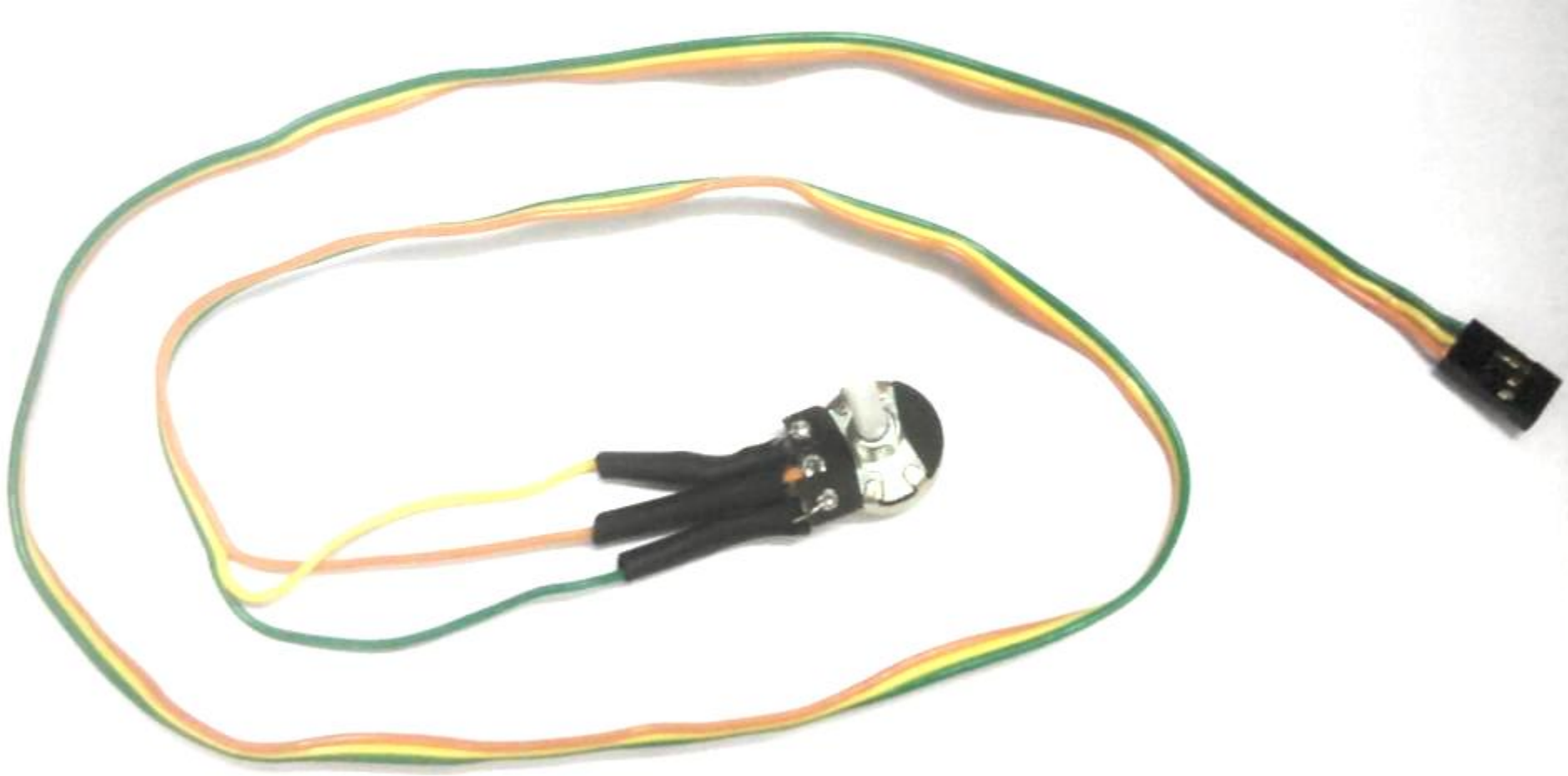
USB cable(a-b type)



A coiled grey USB cable is shown against a white background. The cable has a USB-A connector on one end and a USB-B connector on the other. The USB-A connector is at the bottom left, and the USB-B connector is at the top right. The cable is coiled in a loose 'U' shape. There is some text printed on the cable jacket, including 'USB 2.0', '480Mbps', and 'AND 28AWG/1PR'. The background of the slide features a blue and white wavy design at the top.



Potentiometer with nut



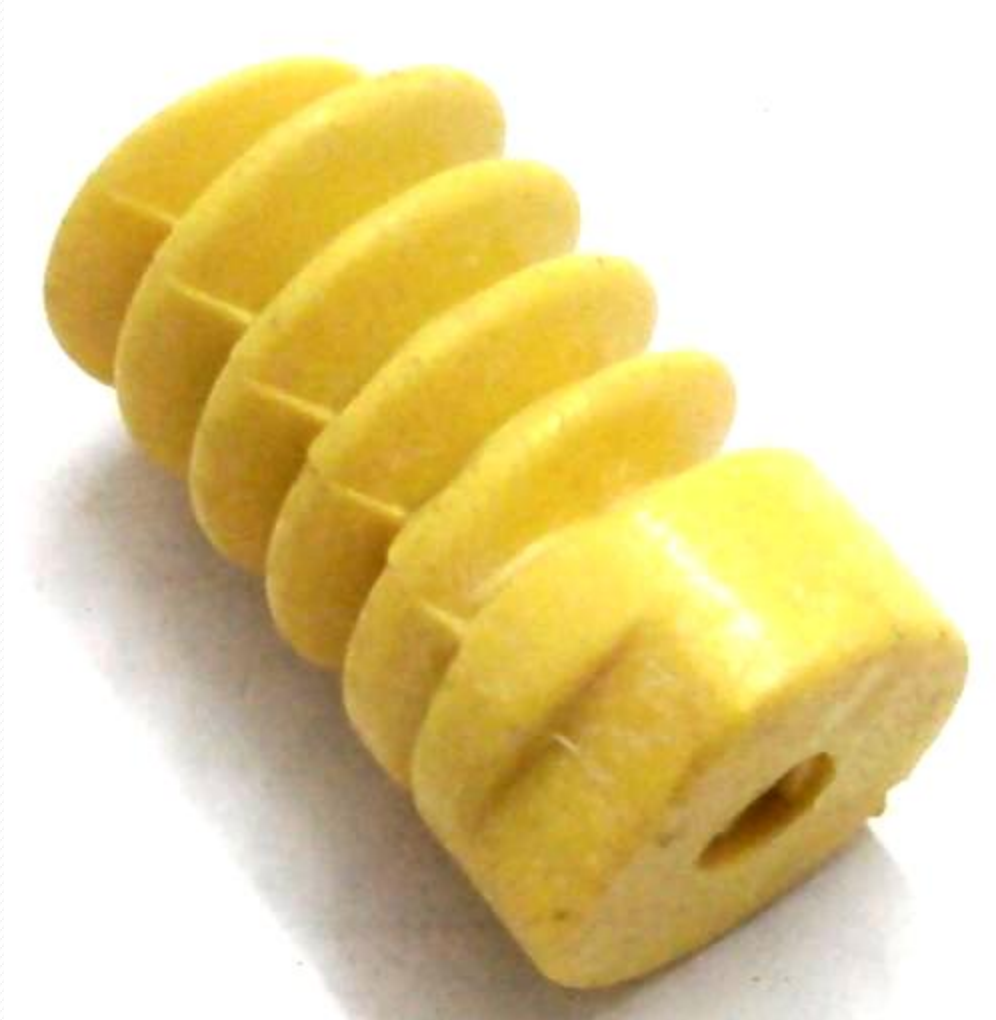
9v Battery



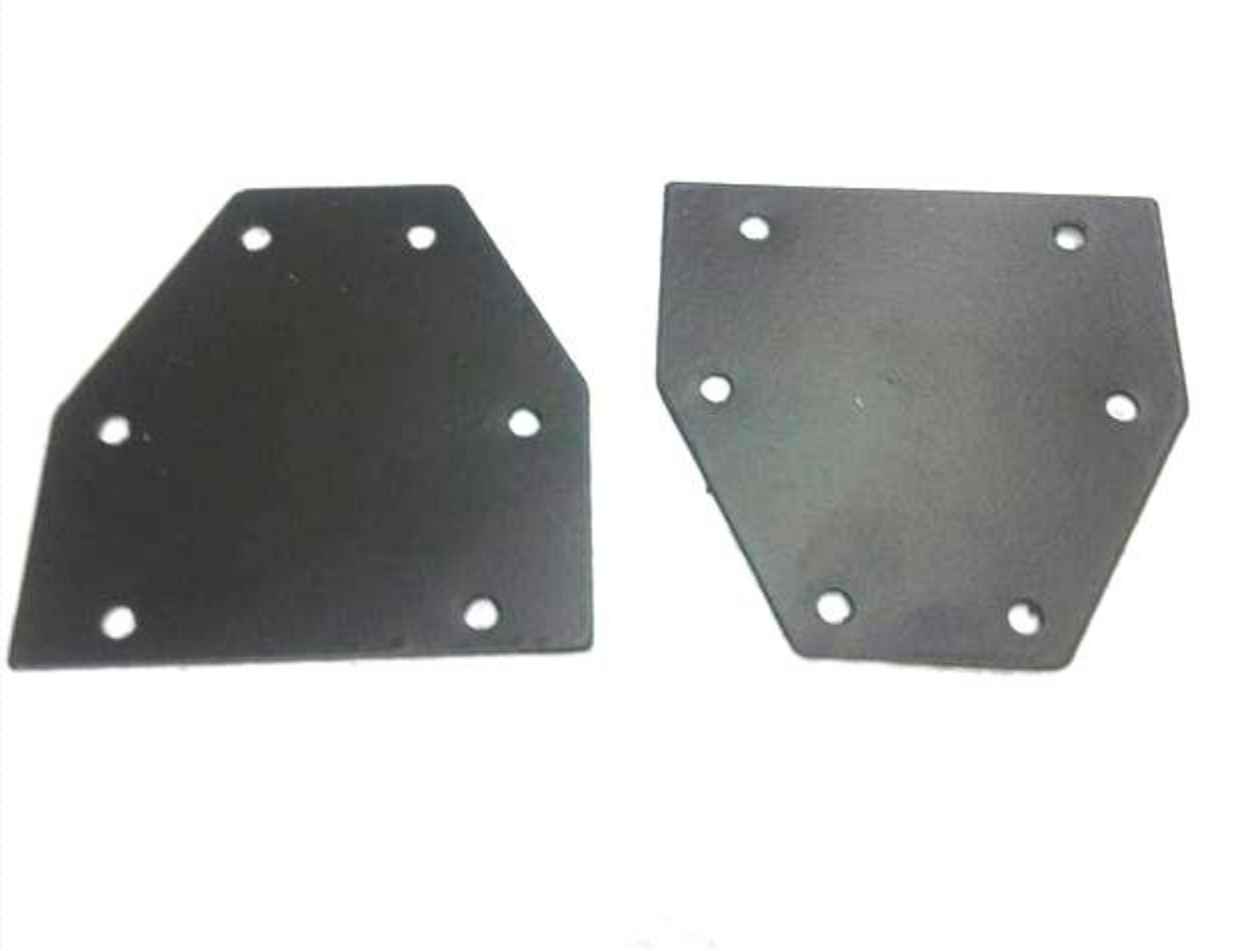
Spur Gear



Worm



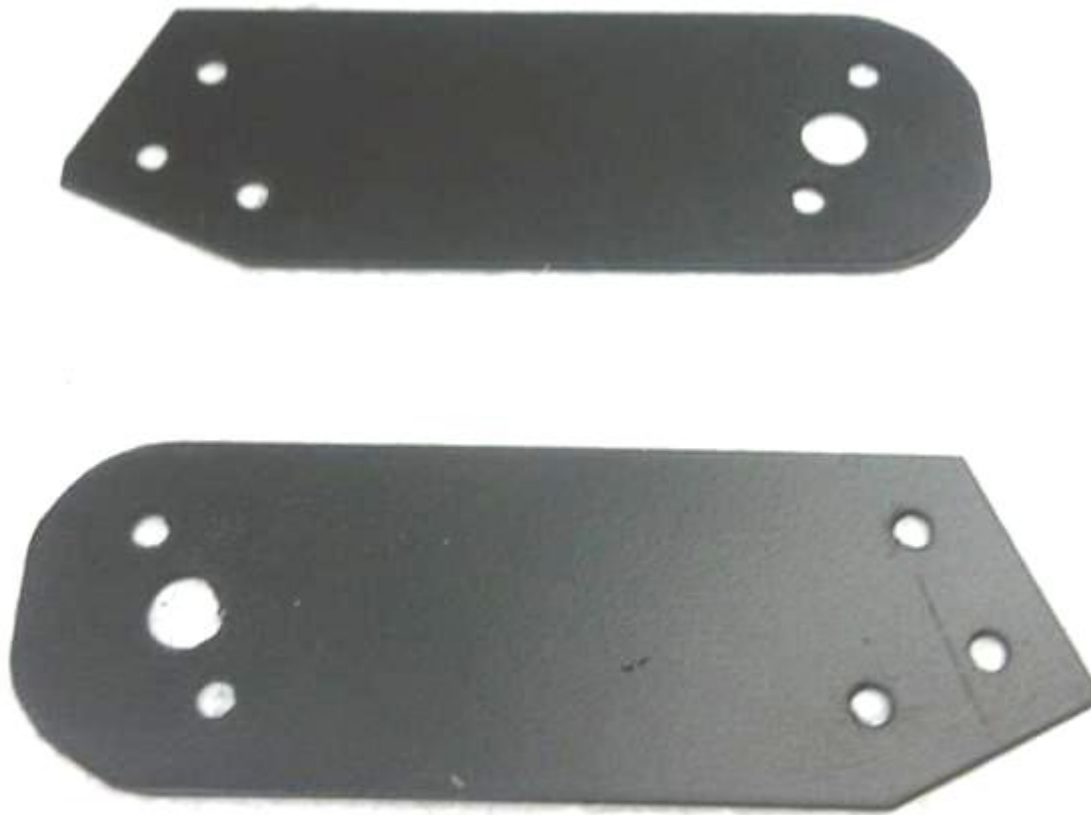
Arm Casing



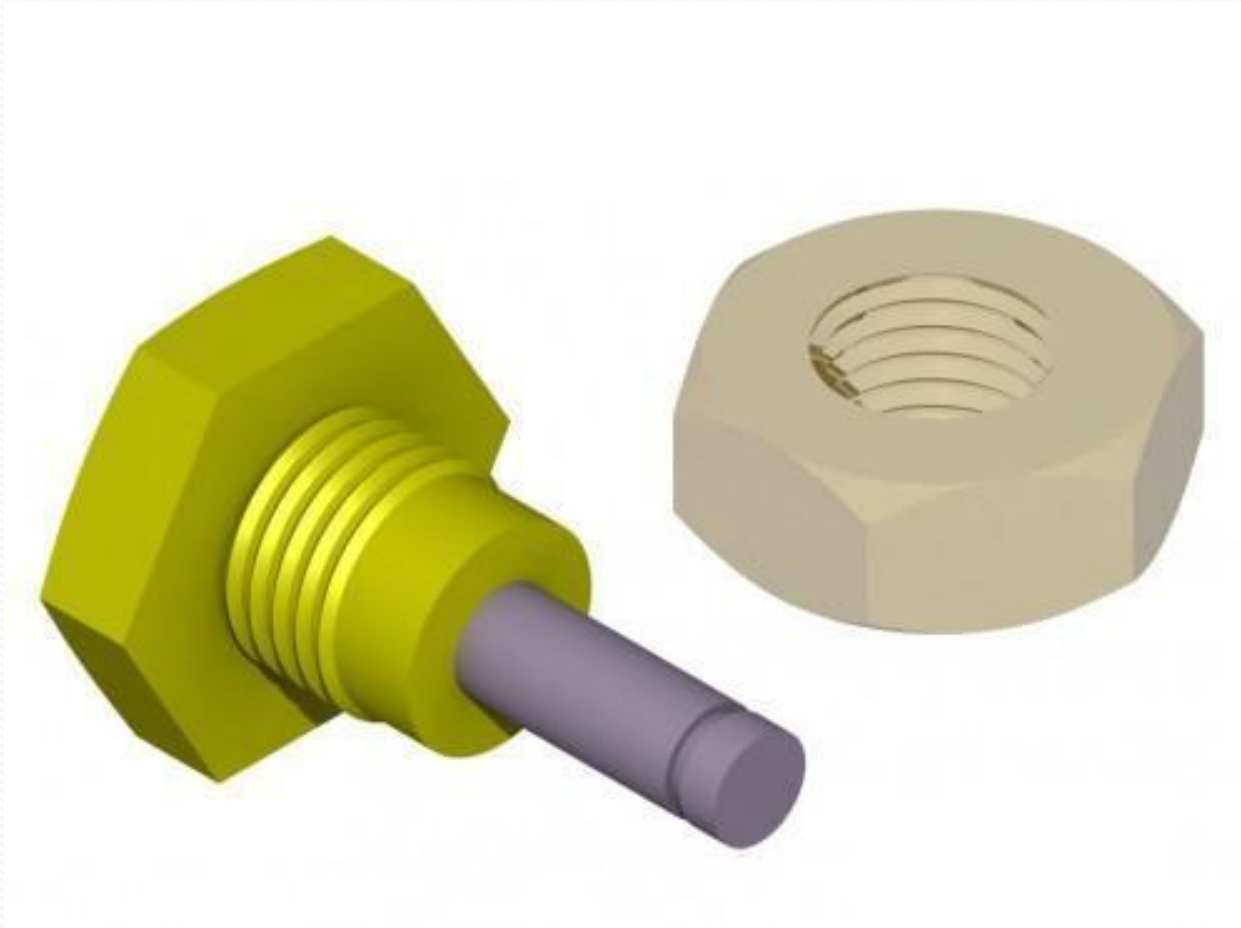
Claw plates



Dumpster plate



Dead axel with nut



Gearbox



Bushing



Coupling lugs



Quad clamp



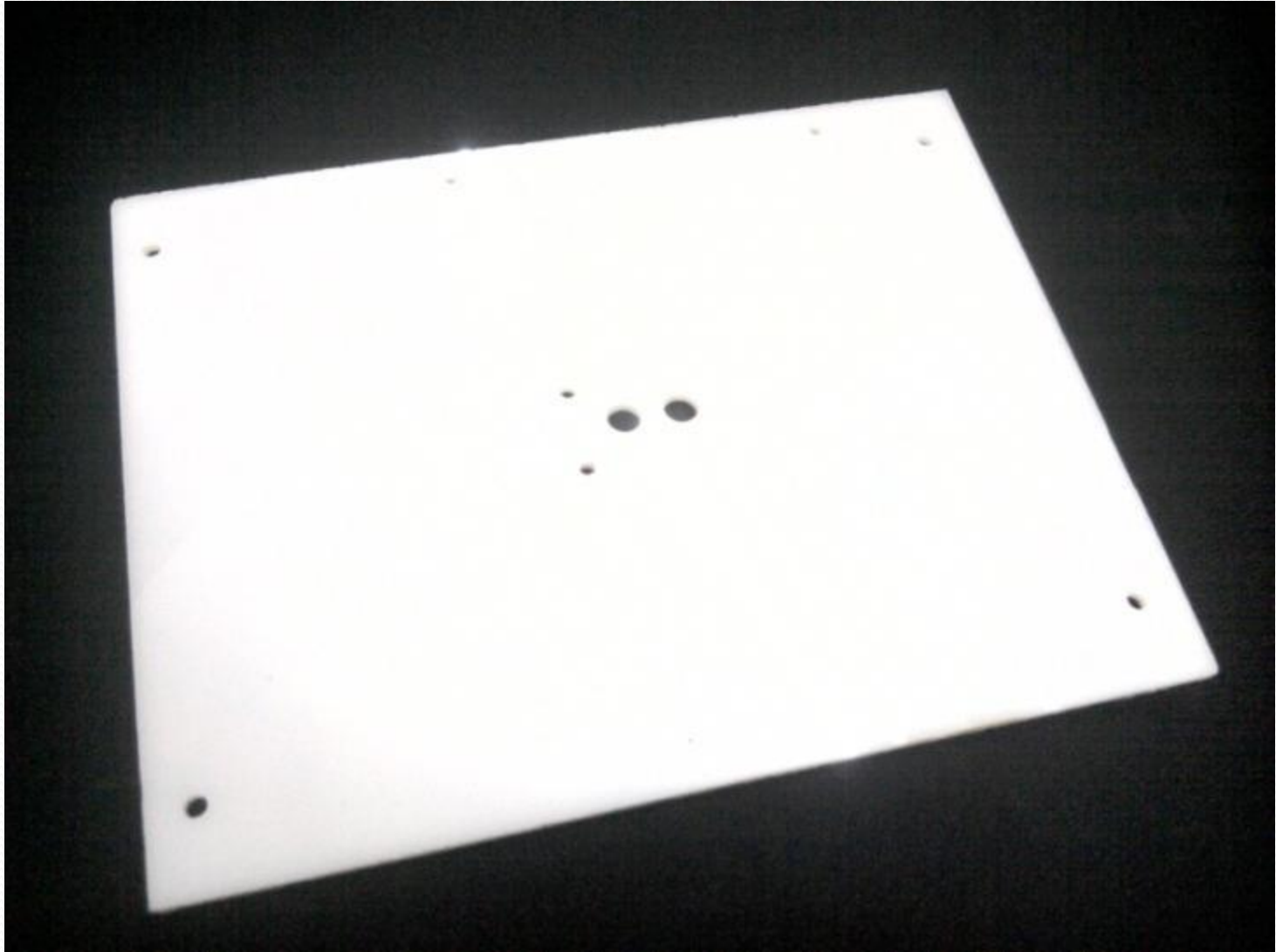
Haptic Suit assembly



Velcro



Acrylic base



Cylinder stand



Base disc



Nut bolt pouch



Screws

3pcs

15pcs

2pcs

Thin small screw

**Use to mount
worm gears with
motor shaft**



Thick big screw

**Use to mount
motors and
many more**



Thin long screw

**Use to mount
wheels on motor
shaft**



Nuts and bolts

Used in cylinders (4)

used in plate joints(22)

used in claw(2)



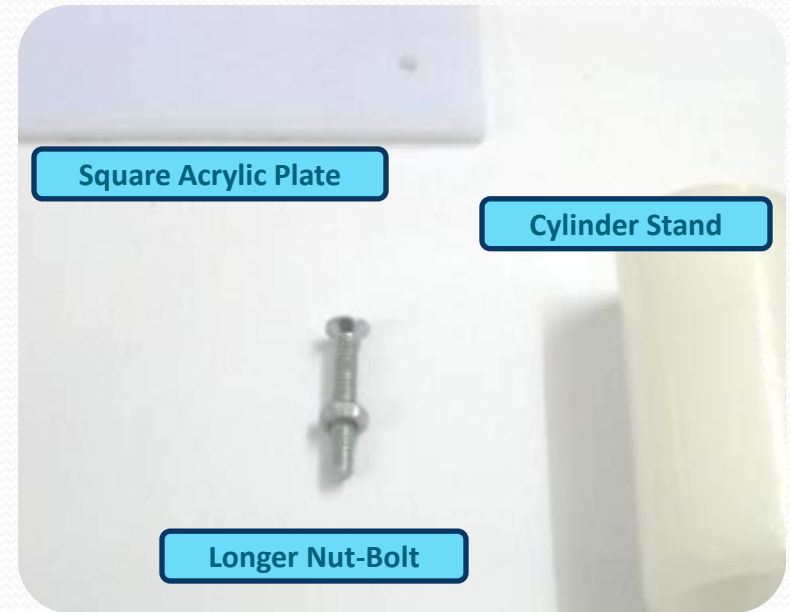
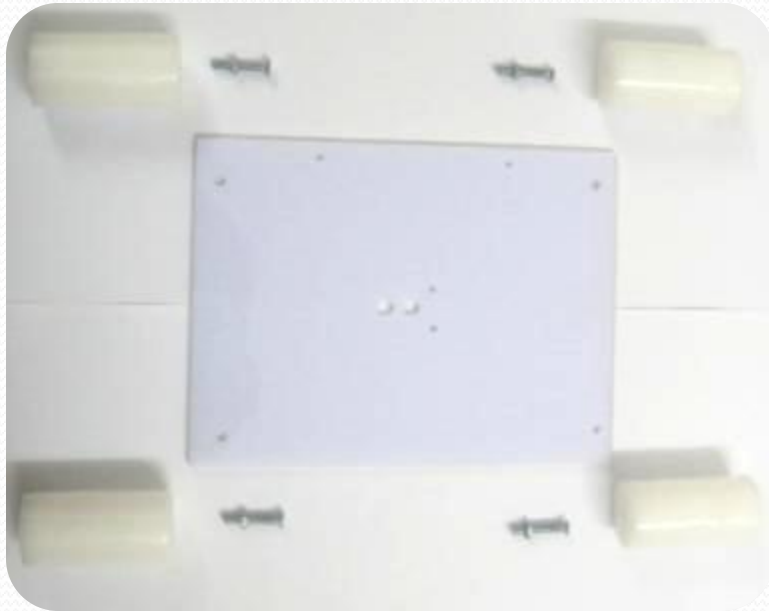
Spacers

4

Use to mount PCB on Chassis

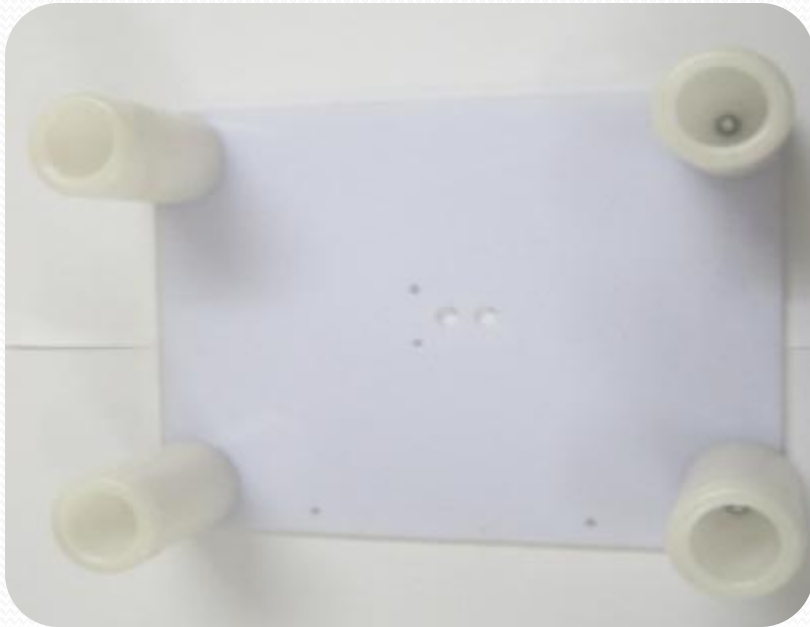


Make A Base for the Haptic Arm



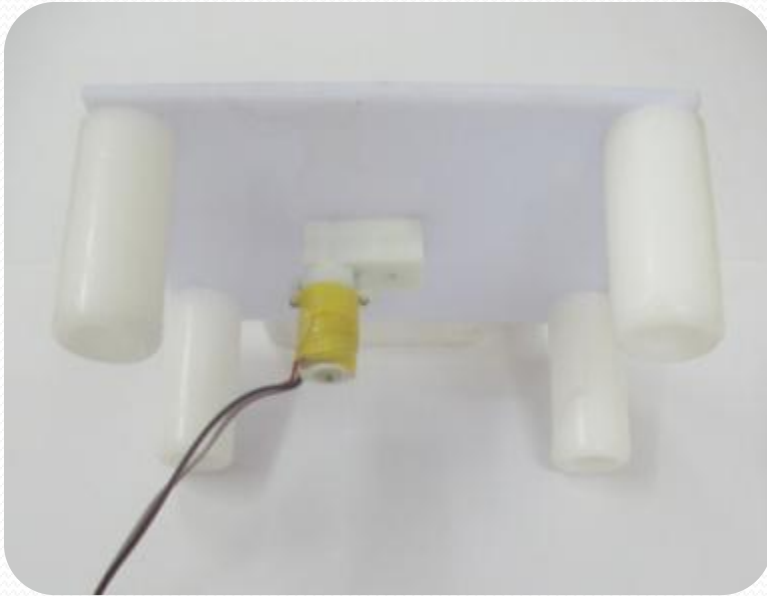
Take Square Acrylic Plate and Round Cylindrical Stands with Longer Nut Bolts.

Haptic Base is Ready



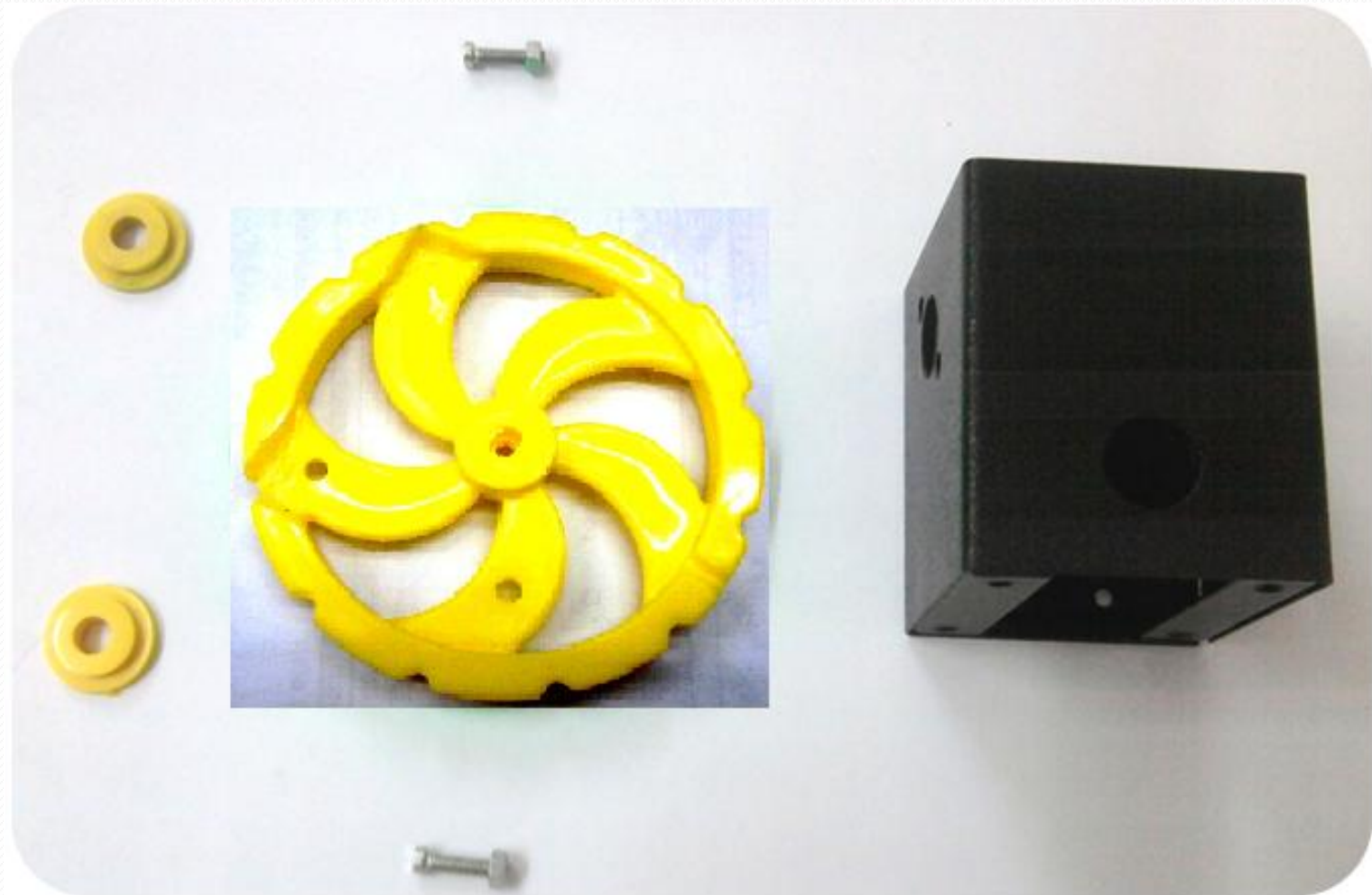
Fix the Nut Bolts Tightly and Now Reverse the Base..

Insert Elbow Motor to the Base

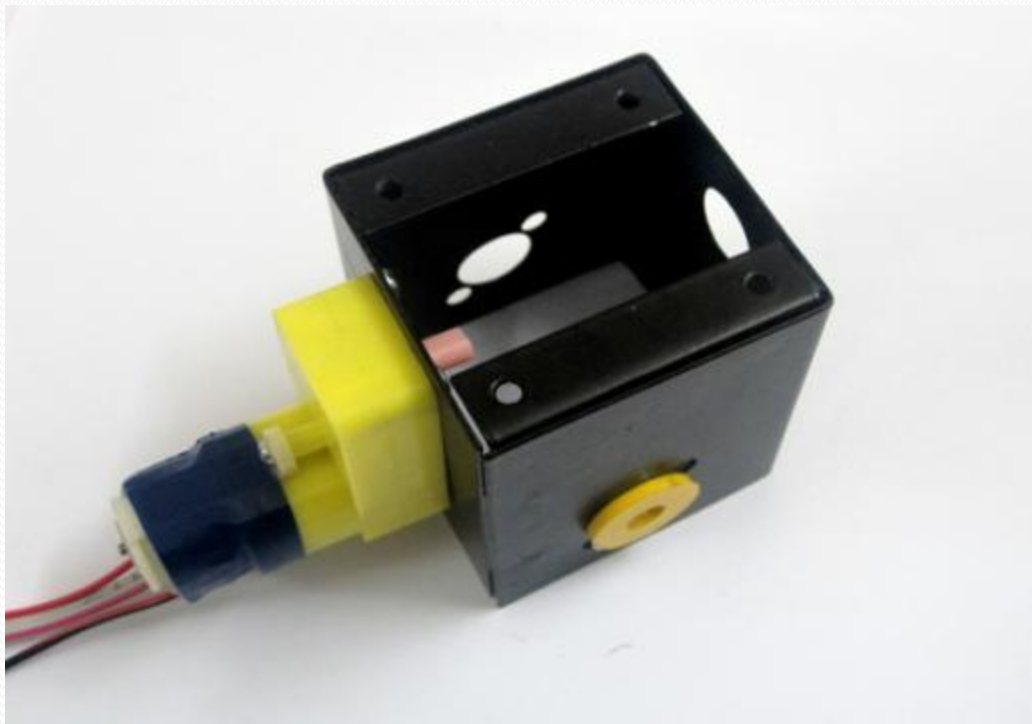


Tight the White Motor with Longer Thicker screws from Upper Side

Making of Wrist Assembly...



Making of Wrist Assembly...Cont.



Mount Yellow Color DC Motor On Gear Box, Use thick big Screws

Making of Wrist Assembly...Cont.



Mount Gear Box on Wheel using nuts and bolts

Making of Wrist Assembly...Cont.



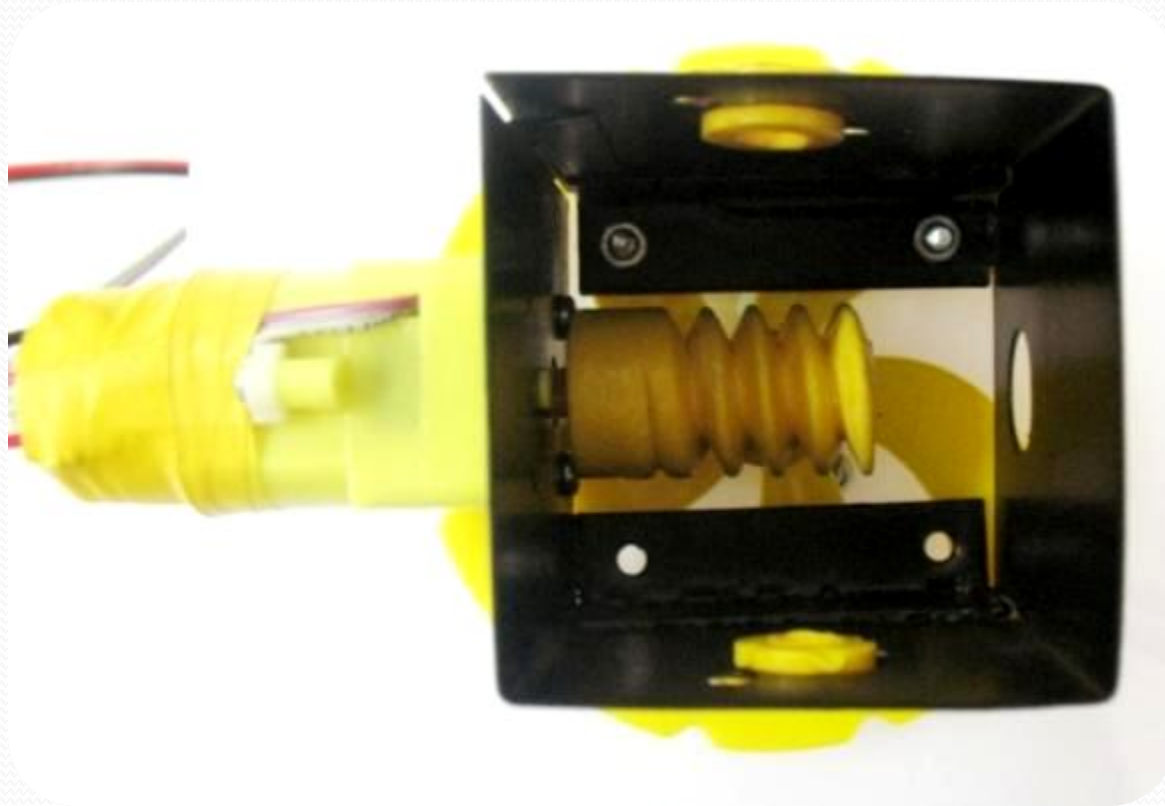
Mount Gear Box on Wheel

Mount Wrist Assembly on Base of Arm



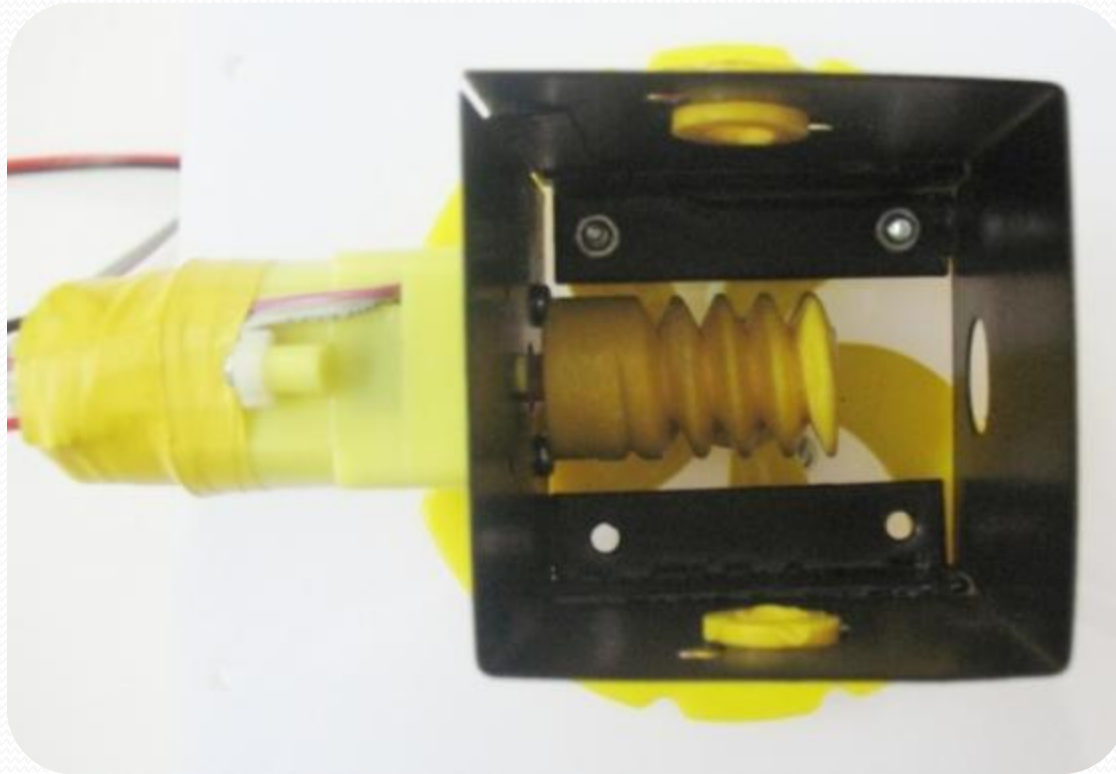
Insert & Tight Longer Thinner Screw at the Shaft of the Wheel

Making of Gear Box



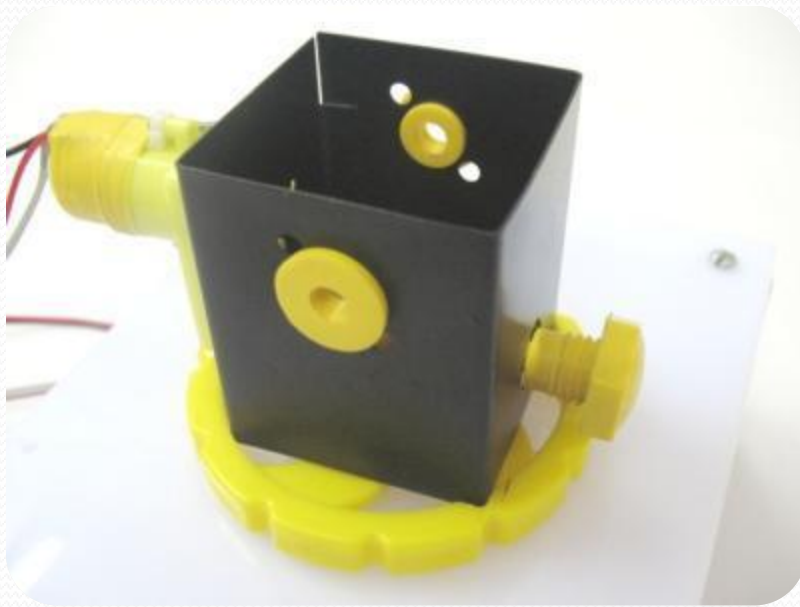
Insert Worm to the Motor Shaft.

Making of Gear Box



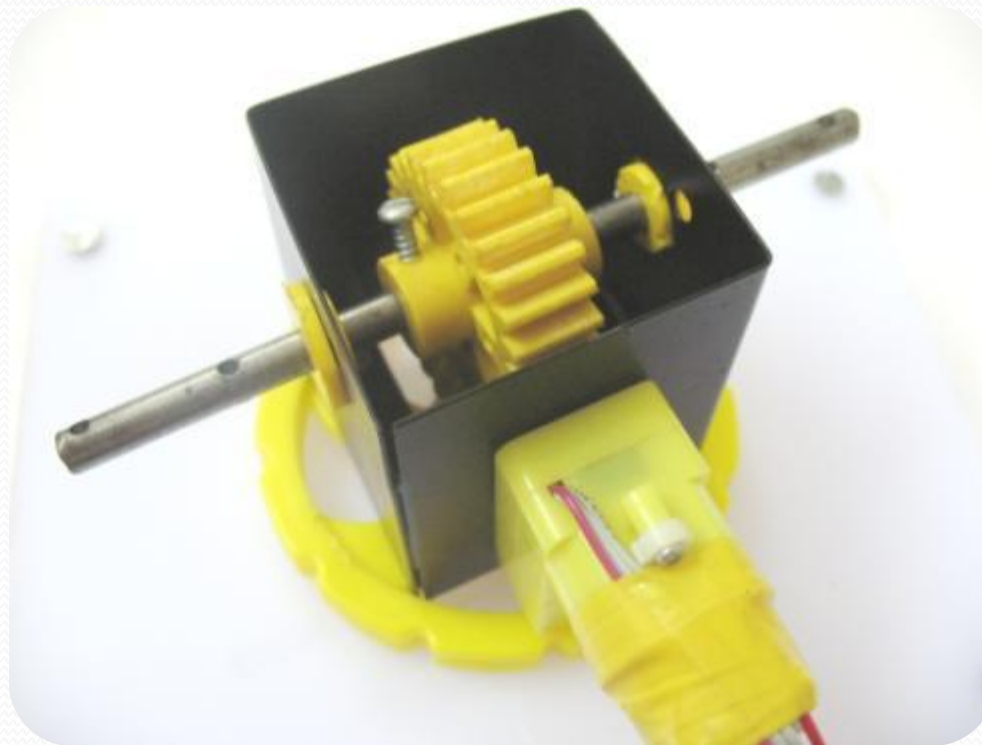
Insert thin small screw tight it.

Making of Gear Box



1. Insert Dead axel
2. Connect the Nut with it

Making of Gear Box Cont...



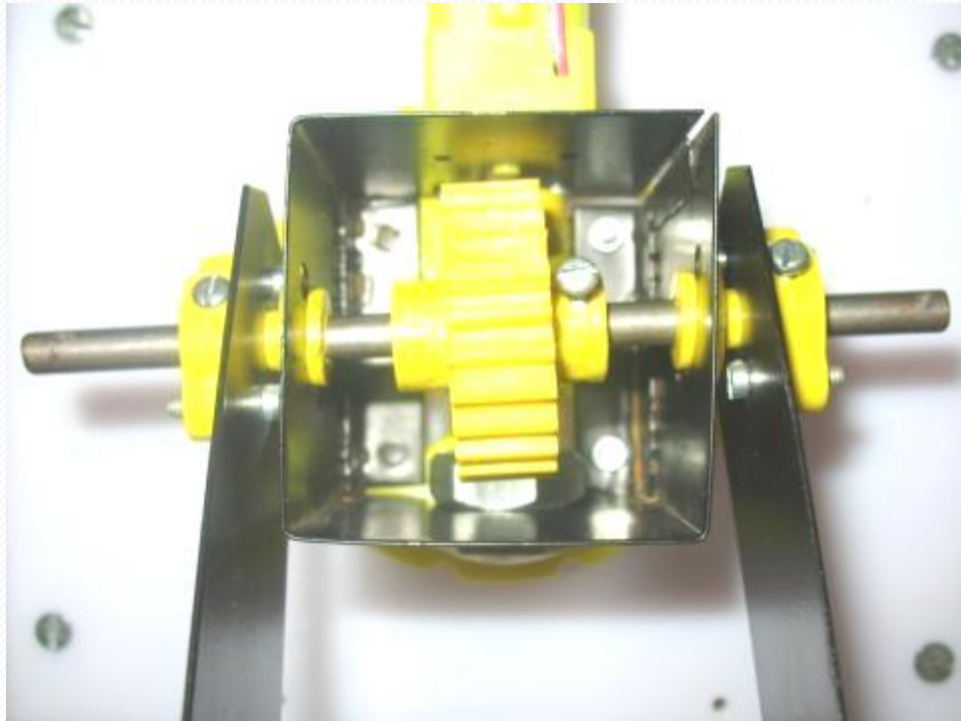
Insert the rod and gear, use thick big screw to tight it.

Arm assembling



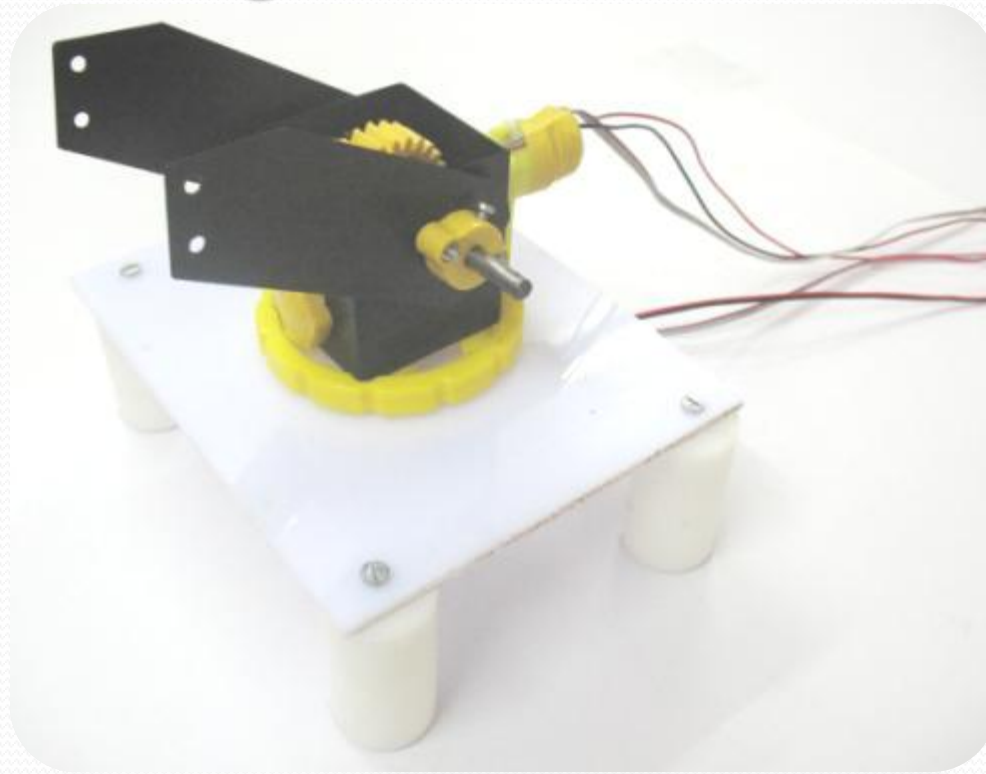
Connect Coupling Lugs with arm plates

Arm assembling



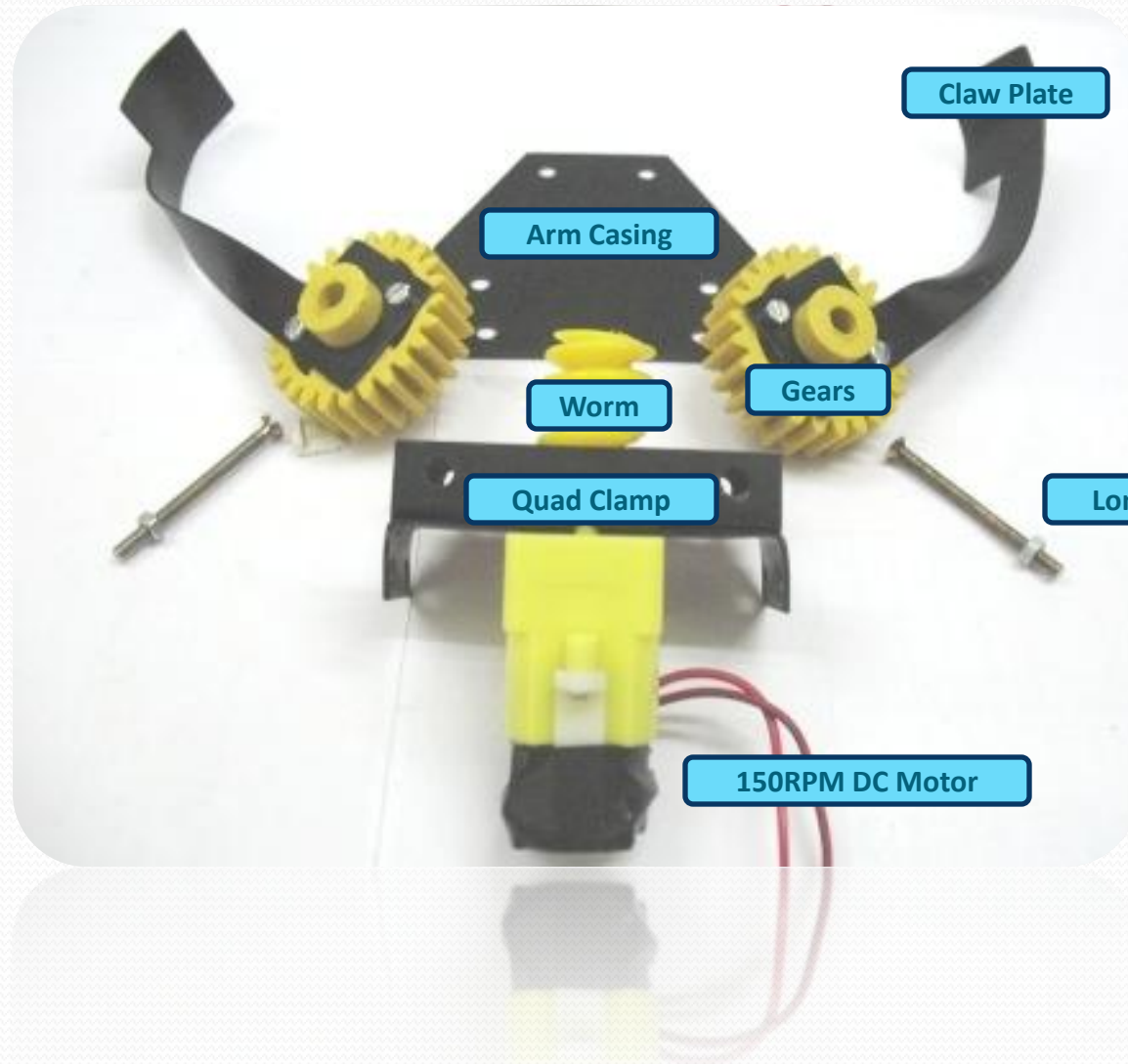
Connect arm plates with gear box, use thick big screws to tight it

Arm assembling



Later Insert & Tight Claw assembly to the Side Plates

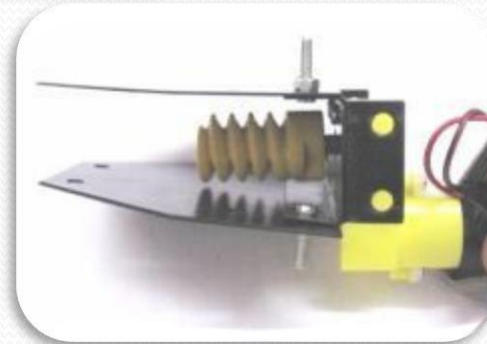
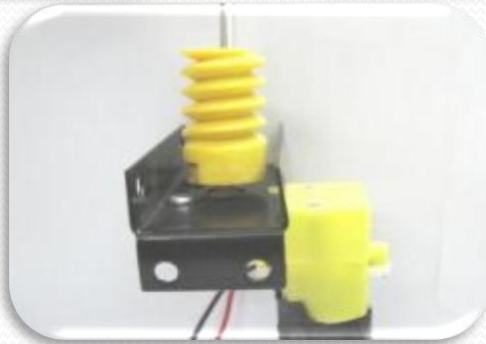
Making of Claw Assembly... Requirements



Make A Claw Assembly



Quad Clamp



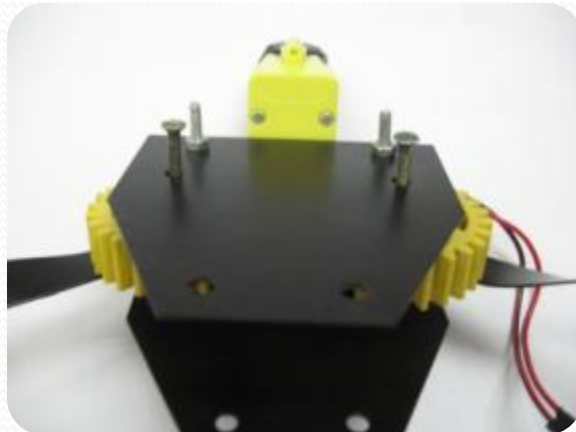
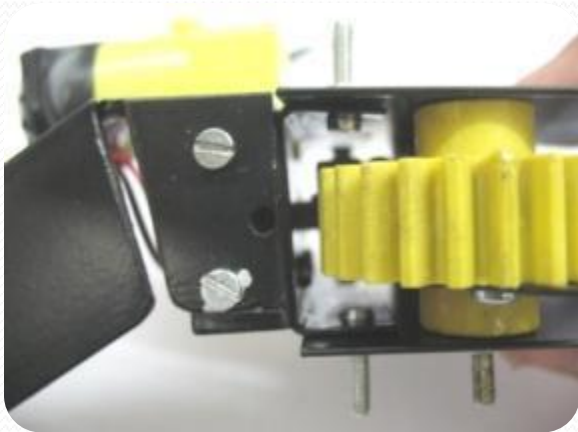
Fix DC motor into Quad Clamp & Insert Worm to the Shaft
also Mount Arm Casing

Make A Gear Assembly



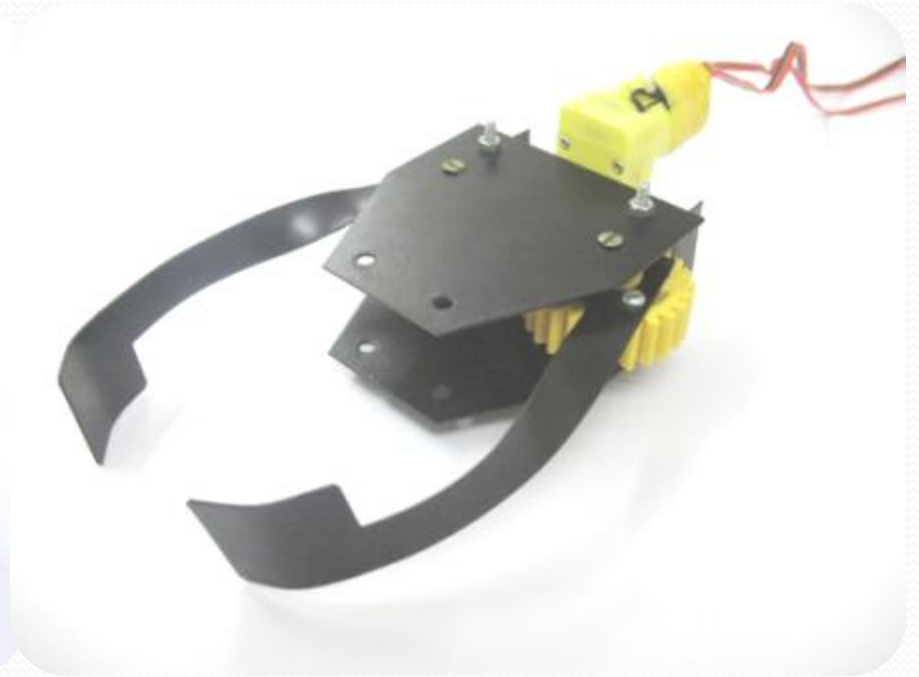
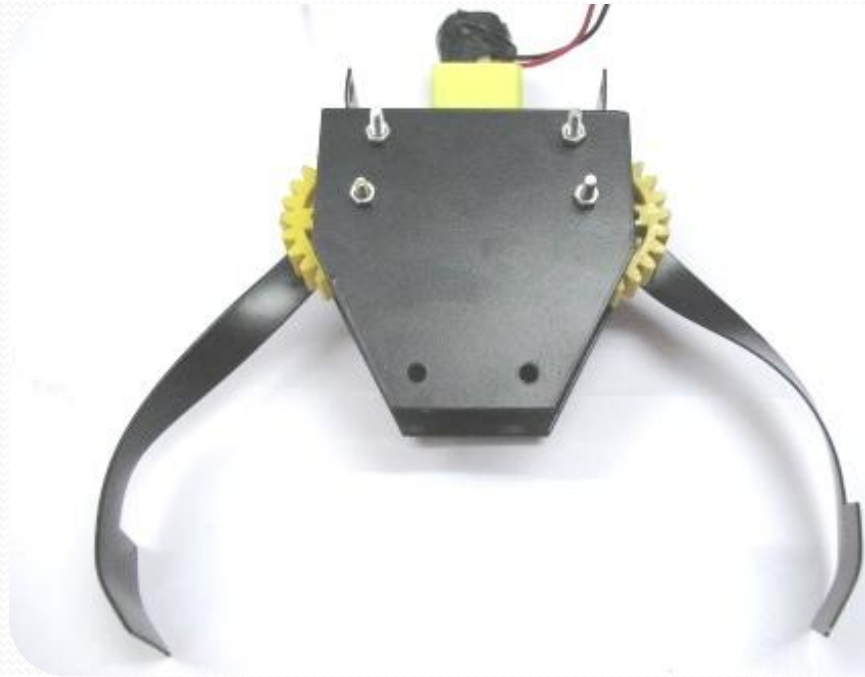
Fix Gears to the Claw with big thick Screws

Mount Claw plates on Arm Casing

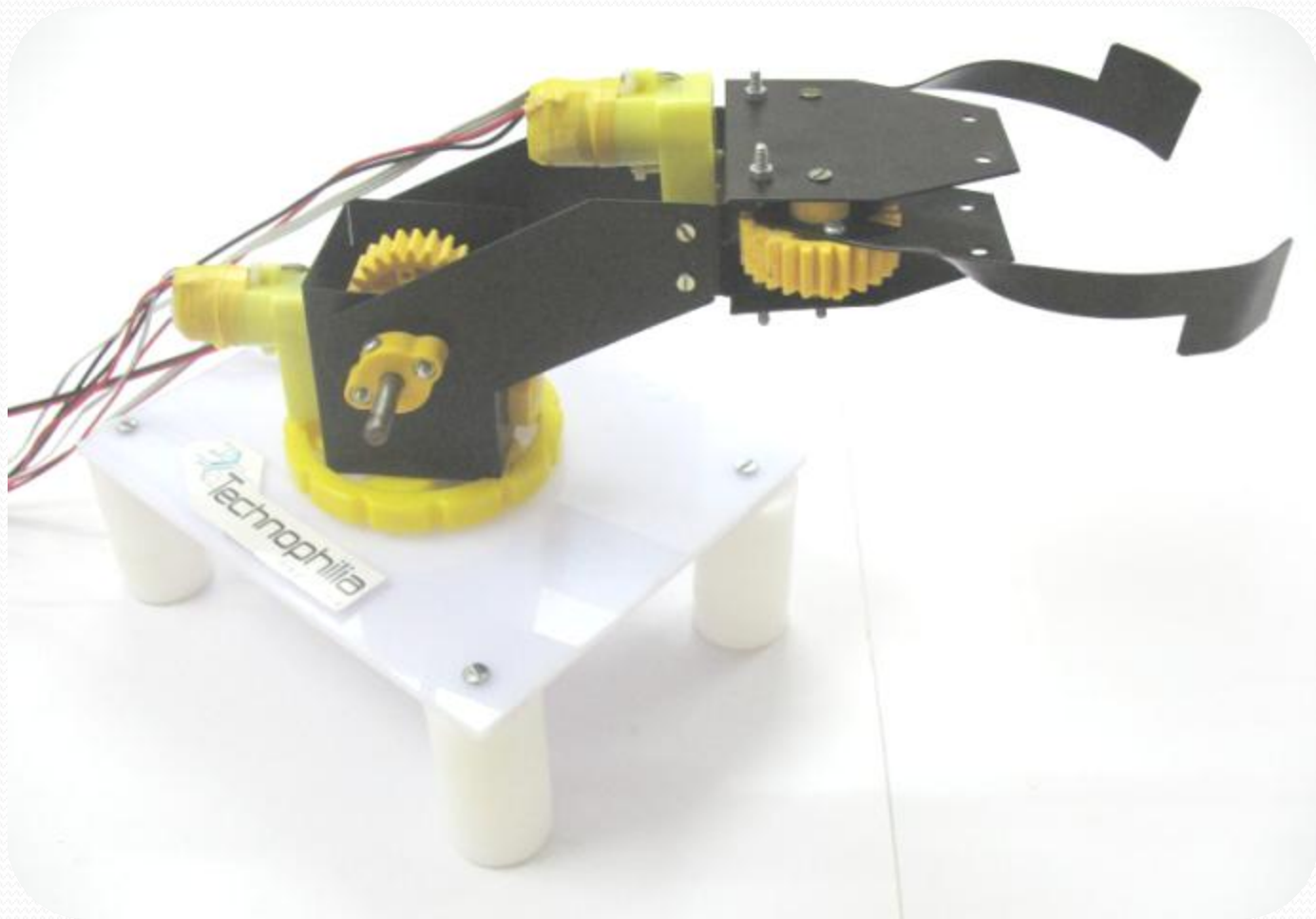


See that Both Claws are opposite in direction & tight it with Nut-Bolts.

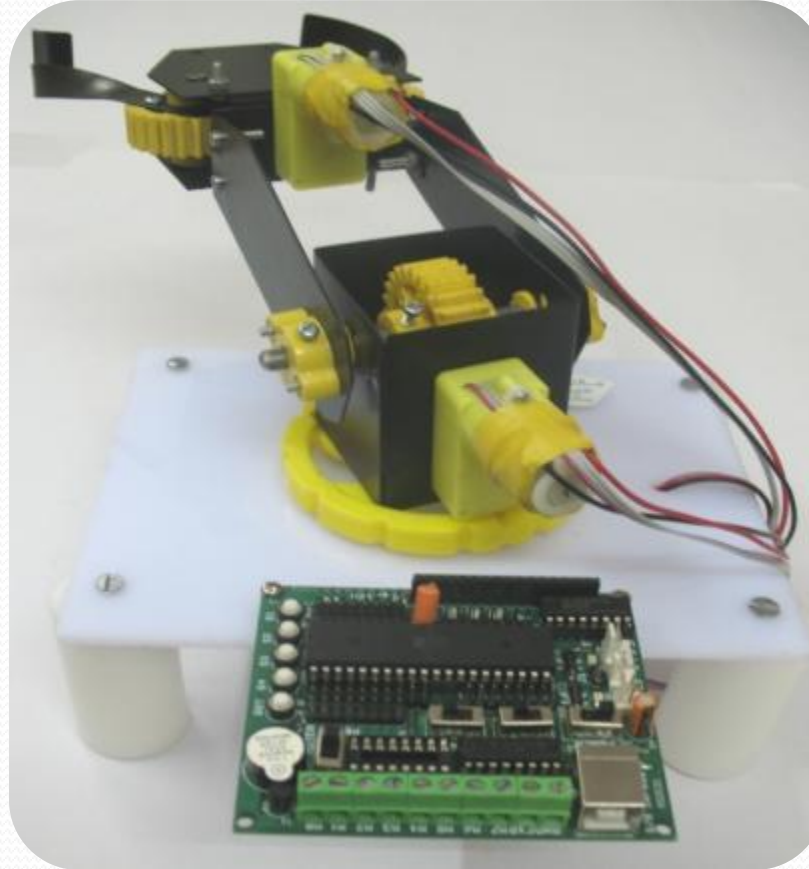
Claw Assembly is Ready



HAPTIC ARM is Ready

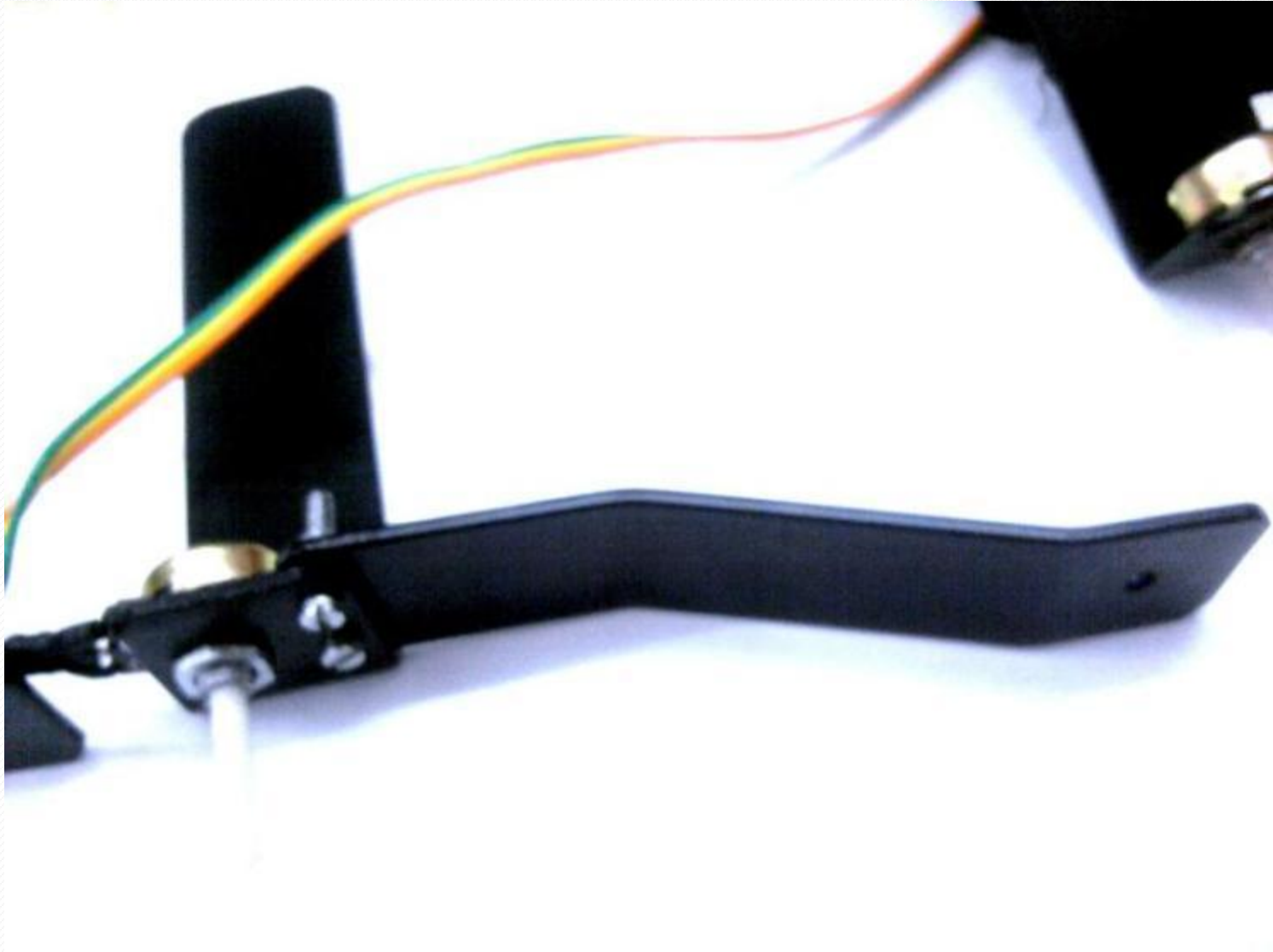


Connect Mother Board to Base with spacers



Mount Mother Board on Base Plate with Nut-Bolt & Spacers

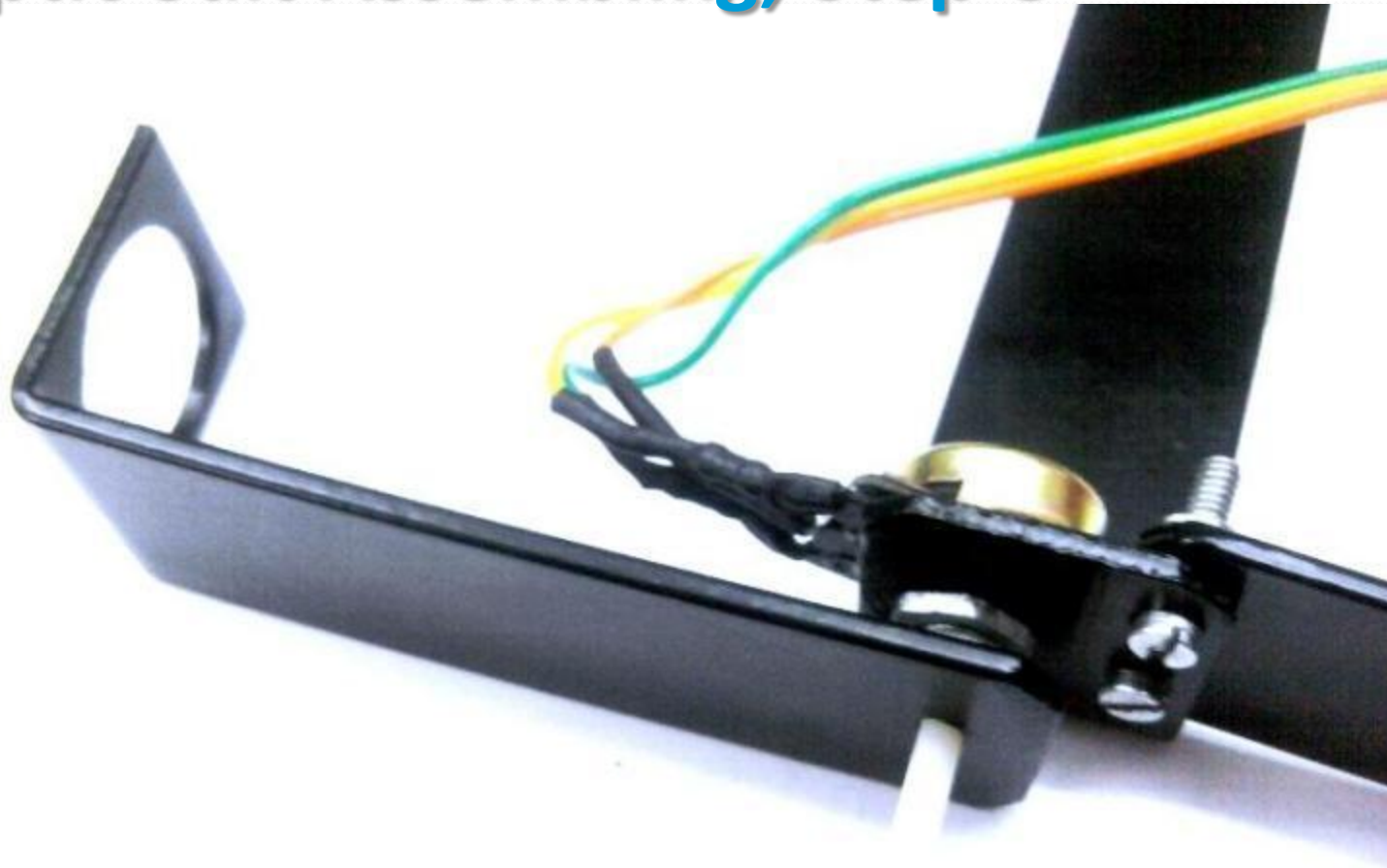
Haptic Suit Assembling, Step-1



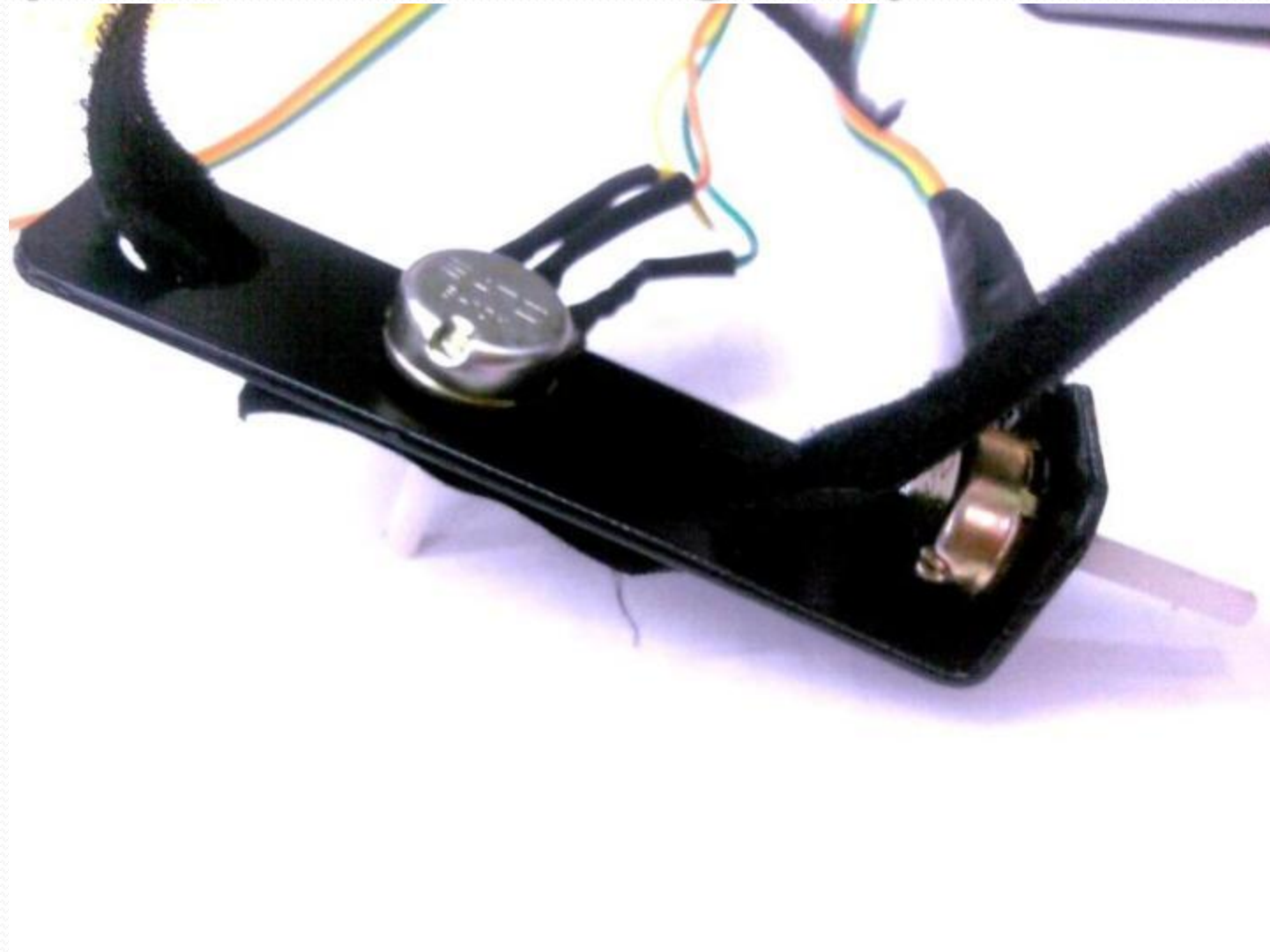
Haptic Suit Assembling, Step-2



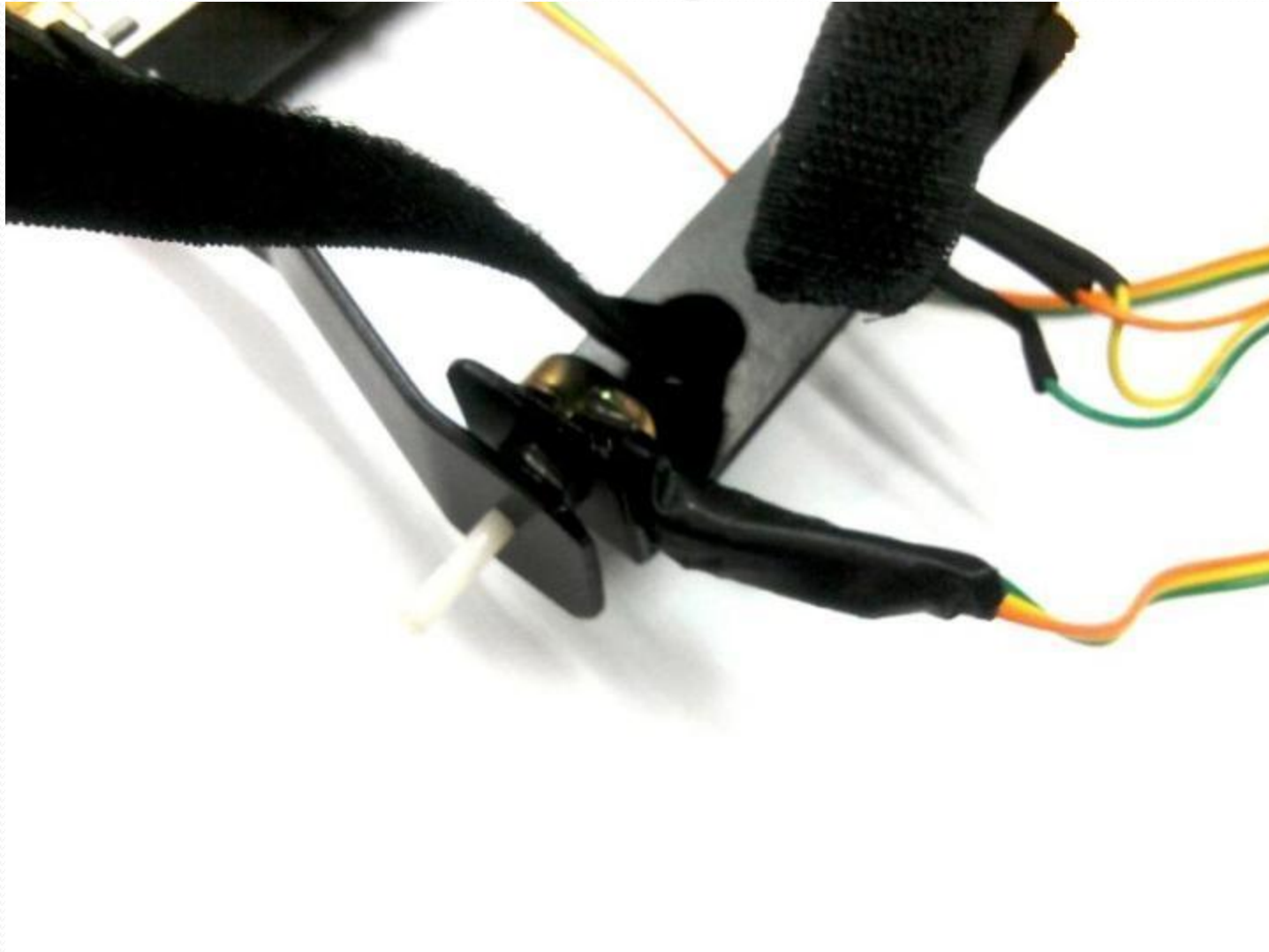
Haptic Suit Assembling, Step-3



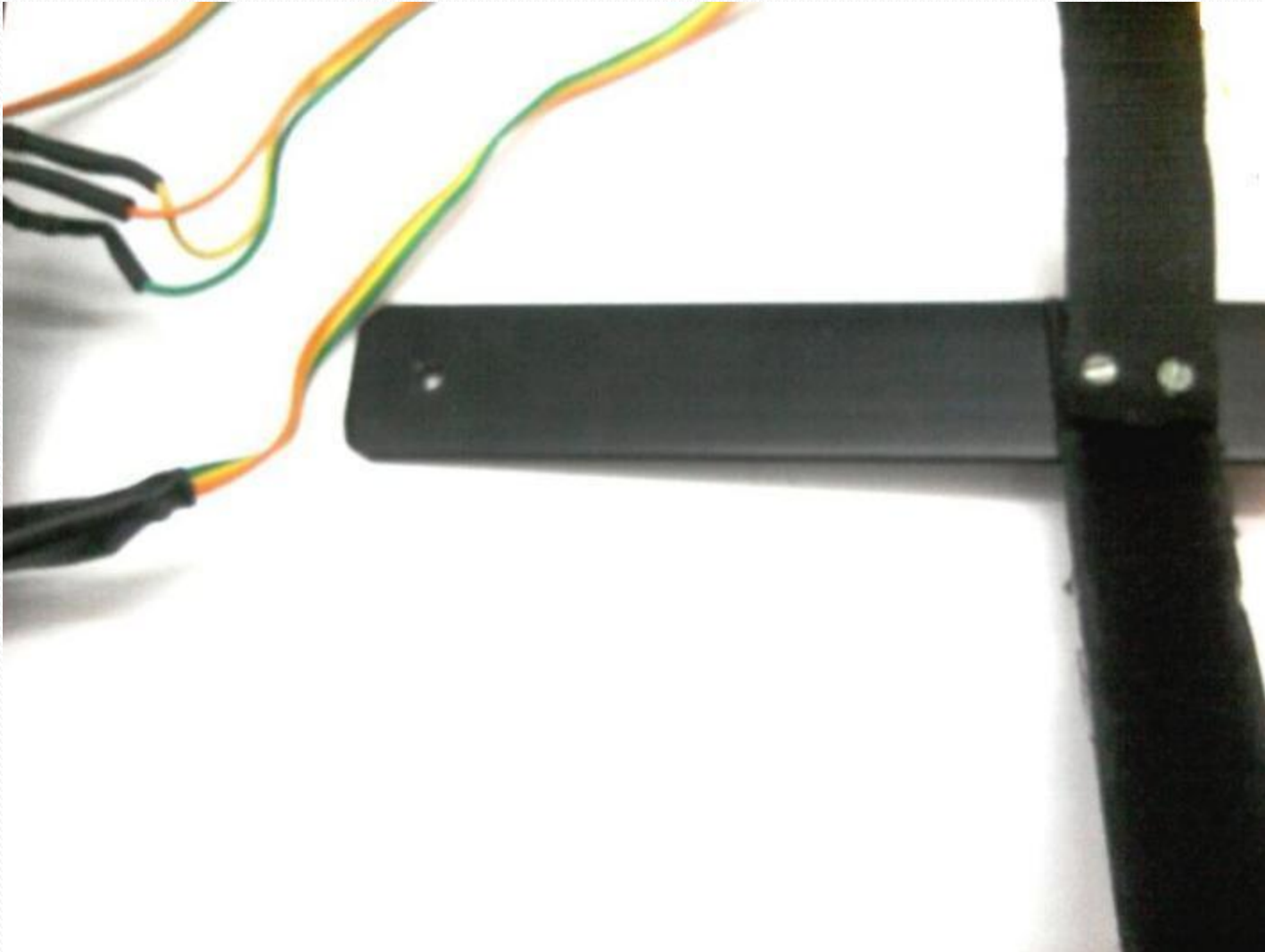
Haptic Suit Assembling, Step-4



Haptic Suit Assembling, Step-5



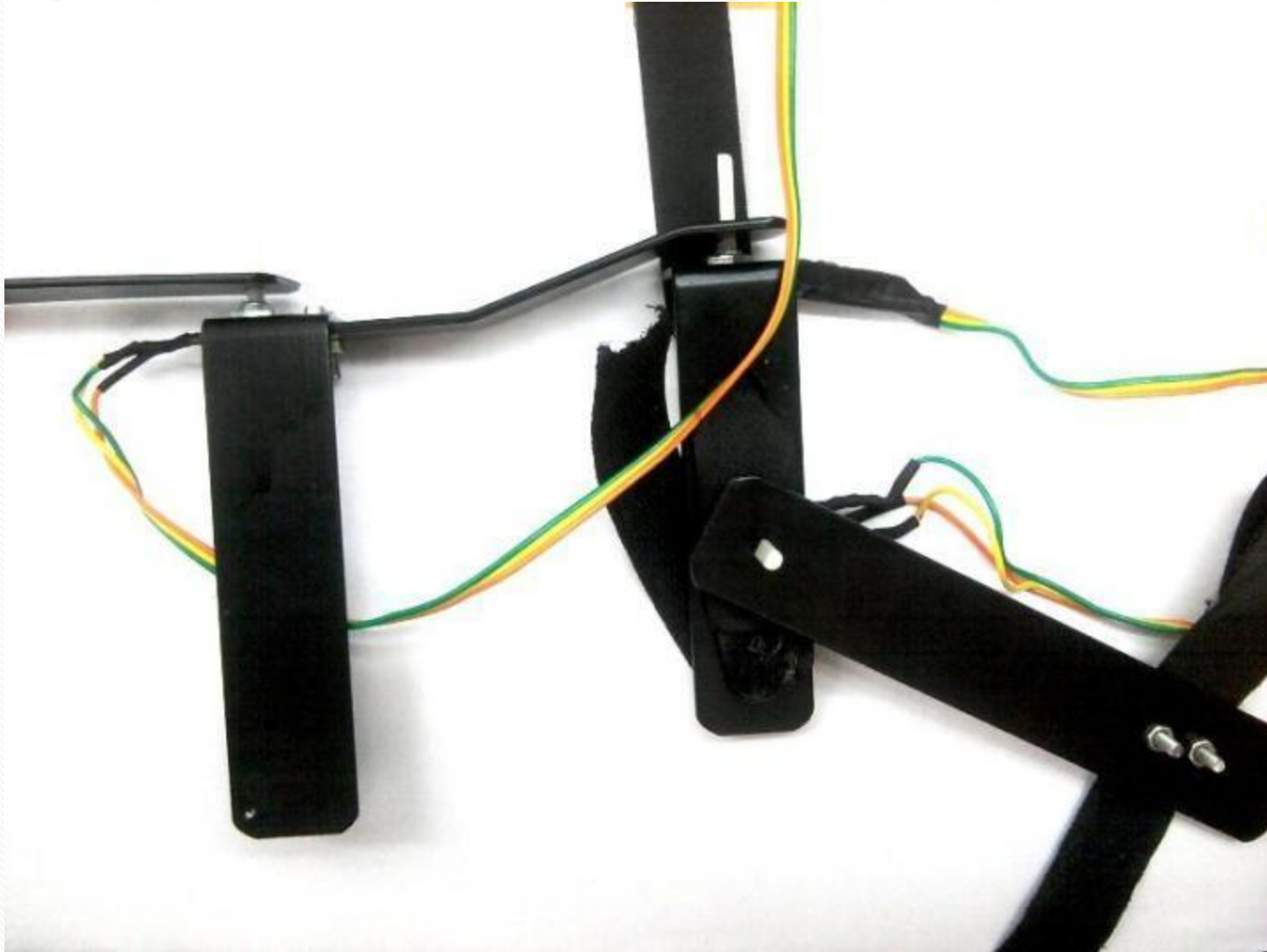
Haptic Suit Assembling, Step-6



Haptic Suit Assembling, Step-7



Haptic Suit Assembling, bottom view



Haptic Suit Assembling, top view

