Steps :

1) Welding between vertical column and supports

2) Fastening I rods with the plate above vertical column

3) screwing down rack on I rod

4) connecting the rollers on the slider plate and in turn connecting it to the I rod

5) I covering(plastic cap – clamp)

6) Welding Cuboid X on X Slider

7) welding cuboid Y on cuboid X

8) welding z base plate and z rod

9) Inserting the z rod on the y beam

10) welding y beam with cuboid Y

11) welding z cuboid on z rod

12) welding ball screw on z base plate

13) connecting ball screw and servo with the help of coupling

14) connecting gearbox and vertical arm rod with the help of coupling

15) welding between vertical arm rod and claw

Doubt :

1) base plate for rigid support

2) reducing the height of cuboid Y and increasing the length of Y Beam and then screwing y beam on cuboid Y

3) where to keep rollers for z rod motion, is it compulsory?

Parts :

Supports –

L shape(Steel) - complete solid structure

Rib(Steel) - would be welded to the L shaped brackets

Vertical Column(Steel) – Supports( L shape) will be welded to it

Rectangular Plate(Steel) – a plate of dimensions 300x208x20 mm , where 4 holes will be drilled at corners.

X Part :

I rod(Aluminium) –Will be fastened using screws on the rectangular plate

X Pinion (Mild steel) – Module-1.75, teeths- 20, shaft hole - (To be determined)

X Rack(Mild steel) - Module -1.75, length-1500mm, it will be screwed down to the I beam via 5 Flathead screws at equal intervals

X Rollers(Steel) –

X Sliders( – plate - an aluminium plate of dimensions 350x164x15mm with 4 corners holes where the rollers will be screwed down and also a centre hole for the shaft to be mounted.

Cuboid\_X (Aluminium) – Solid cuboid welded to the Y beam, and connects the beam with the X slider plate.

Y Part :

Cuboid\_Y –

Y Beam(aluminium) – A beam of length 1100mm and a hollow cross section of 180x130mm welded to the cuboid on which we will place the Z Vertical slider

Y Rack (mild steel) - Module -1.75, length-1100mm, it will be screwed down to the I beam via 5 Flathead screws at equal intervals

Y Pinion (mild steel)– Module-1.75, teeths- 20, shaft hole - (To be determined)

Y rollers (steel) – Probably cylindrical Rollers connected to Z Vertical Slider with Screws

Z Part :

Z base plate (aluminium) –Welded to the bottom of the Z vertical slider, providing the ball screw support

Z rod (aluminium) –

Cuboid\_Z (Vertical slider) (Aluminium) – placing along the beam, house the servo and gear box on an extended plate and also the rollers. A servo is mounted on the top for the Motion in Z axis of the arm via ball screw. Internally hollow structure.

Z Rollers – Cylindrical rollers connected to the Z\_L shape

Z\_L shape (Aluminium) – L shaped Bracket connected to the ball screw via a Nut housing connected to it

Z ball screw (Mild Steel) – Ball screw of length 608mm connected to a servo at one end and connected to the Base plate at the other end, should be rotatable.

Vertical arm – connected to a coupling(which will be present above the L shaped plate

Claw – welded to the vertical arm

Vertical column -> X \_I beam -> X Rack and pinion -> X\_Slider plate with rollers and servos ->

X\_Cuboid -> Y\_Cuboid -> Y\_Beam -> Y\_Rack and Pinion -> Z\_cuboid with Z base plate ->

Servos for Y axis motion and rollers -> Servos for Z\_axis motion -> Z\_Ball Screw -> Z\_L\_shape

connected to the nut -> Servos for Z axis rotation -> Gripper