WRITE UP – GEAR DRIVEN GRIPPER

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I have opted to make a Gear Driven Gripper. It is a type of robotic gripper mechanism used in automation and robotics for grasping and manipulating objects. Unlike pneumatic/ hydraulic grippers, which use air or fluid pressure for actuation, gear-driven grippers utilize a system of gears and motors to open and close the gripper fingers.

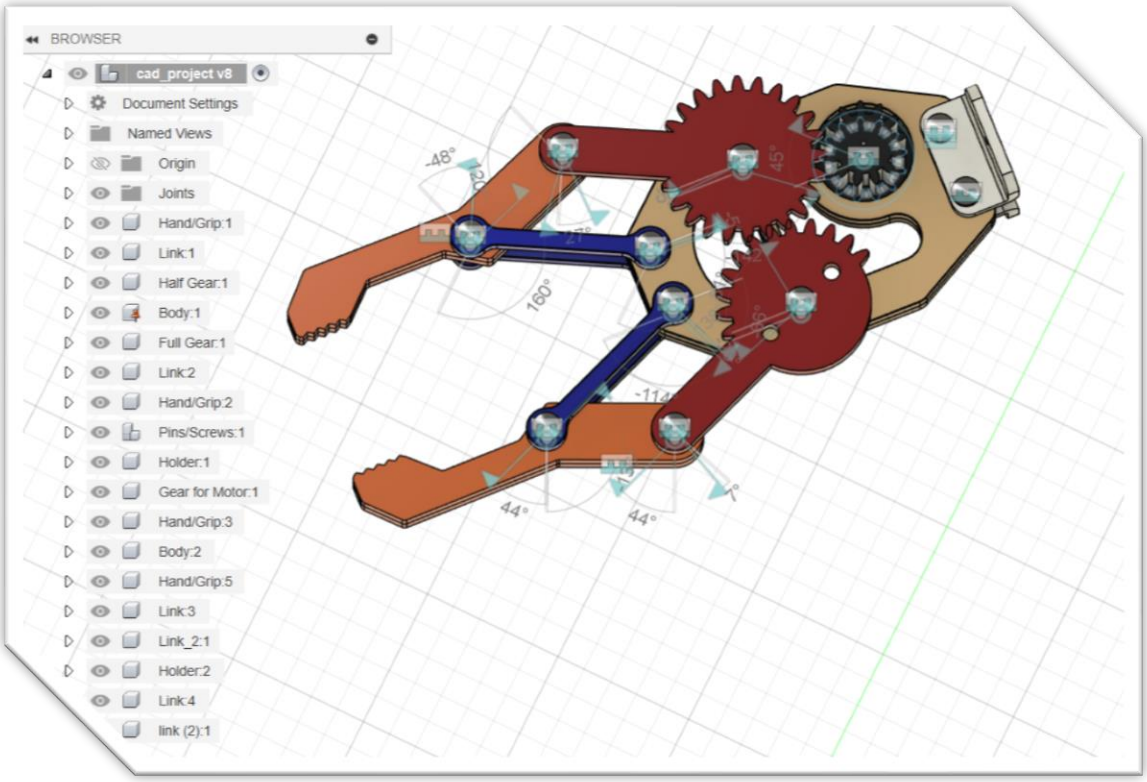

Figure: Gear Driven Gripper

Different Components –

- Links
- Gear with half teeth
- Gear with full teeth
- Links
- Holder
- Hand/Grip
- Body
- Gear to fix the servo-motor(if any)
- Pins/Screws

Challenges I faced during modelling –

Since this particular model is gear driven, all the gears had to be perfectly aligned with a specific degree of freedom for angle, there were many instances when the model crumpled within itself, and took hours to find which link/joint were wrongly given a more degree of freedom.

Here, the gears are attached to the body, links also attached to the body but independently, but the hand/grips are attached to these parts, making it indirectly connected to body, which made it difficult to control.

Keeping track of all the joints and creating motion links, so all the gears are in synchronous motion was the hardest and the final part of this.

Also, instead of maing screws/nuts with grooves, I had used cylinders with two ends covered which in this case was enough to hold the model together,

NOTE: There is a black gear on the body to fit a servo motor, servo motor is not included in this project (also not included in the video reference), they directly imported it from elsewhere.