FS80 + Ultra Light Bracket

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Project goals

Create a support bracket for Zebra FS80 and Ultra Light illuminator that can be easy to mount and easy to use in lab.

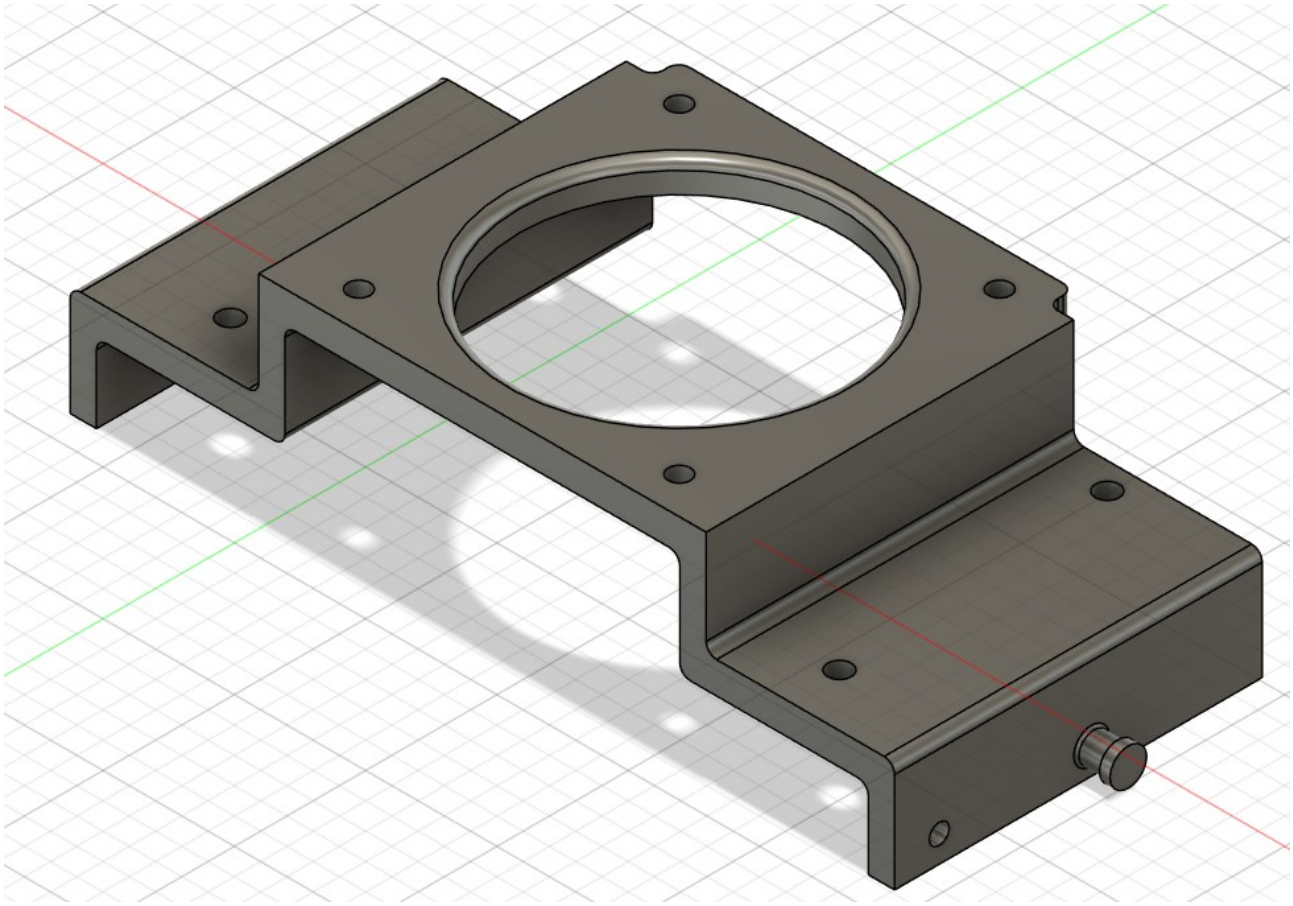
Key point are:

1. Lens are adjustable without removing from the camera
2. The camera can be removed without changing the system orientation
3. The bracket can be mounted on a 60 mm Bosch profile
4. The mounted camera and illuminator are stable and balanced.
5. The height is enough to let the cable pass through without excessive stress or forced bend.
6. Camera and illuminator are fixed using just one set of screws: M4x10 Cylindrical Hex Screws.

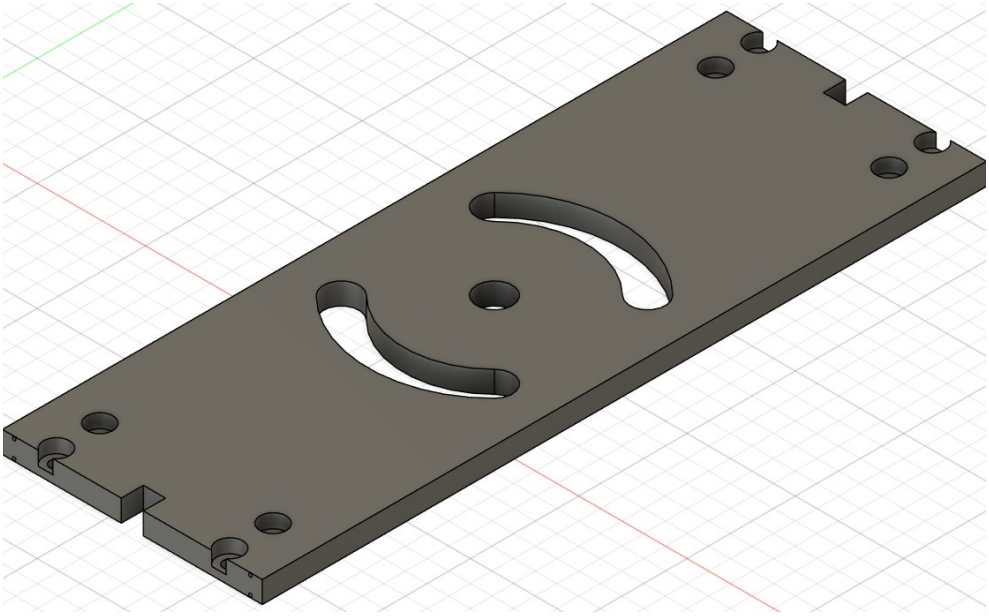
FS80+UL Bracket

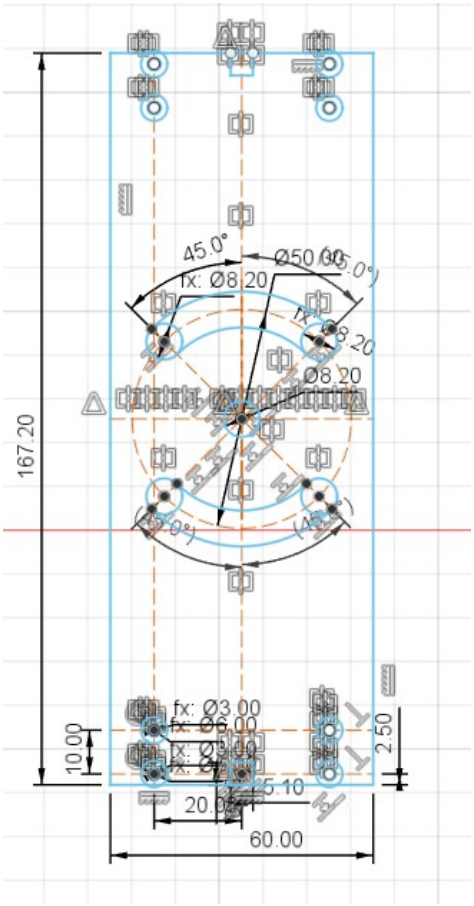
I use multiple bends to gain enough space for the lens. The goal is to have the lens aligned with the LED protection. This to make possible the implementation of a polarized cover for both LED and Lens.

The position of the rotating pins has been calculated to provide a good balancing of the camera.



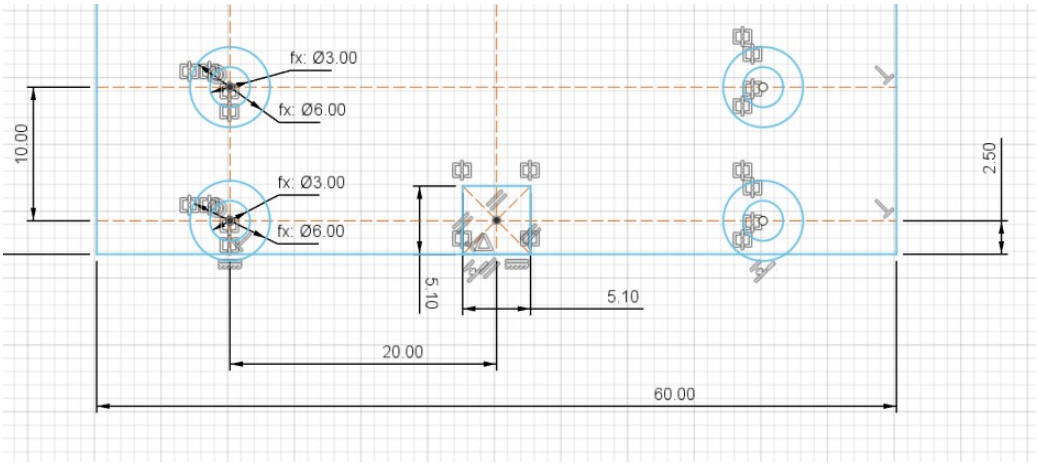
FS80+UL Pivot Base





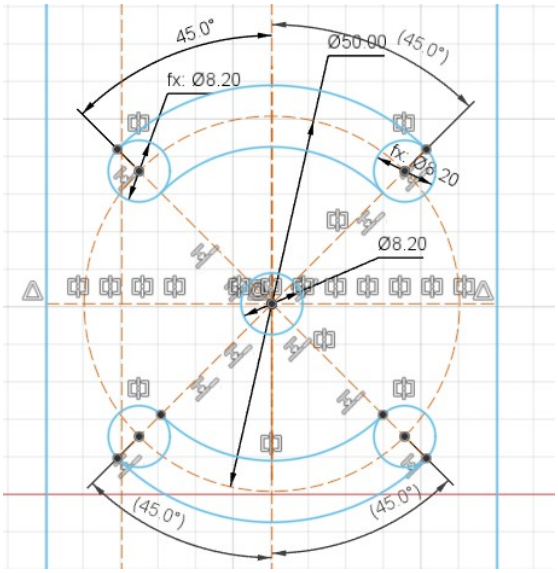
Mounting holes

The base is assembled with the shoulder using 4 screws (4x M3x16) and a small slot in the center.



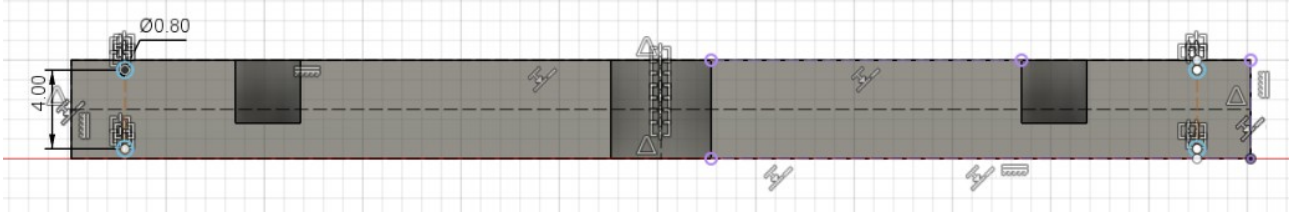
Base rotation

The central hole and the 2 side slots allows for 90 degrees rotation (+/- 45 Deg)



Reinforcement holes

I created 4 holes in the base to force the slicer to add more material and make it more rigid.
The Holes are 0.8 mm and close to the top and bottom face to maximize the resistance.

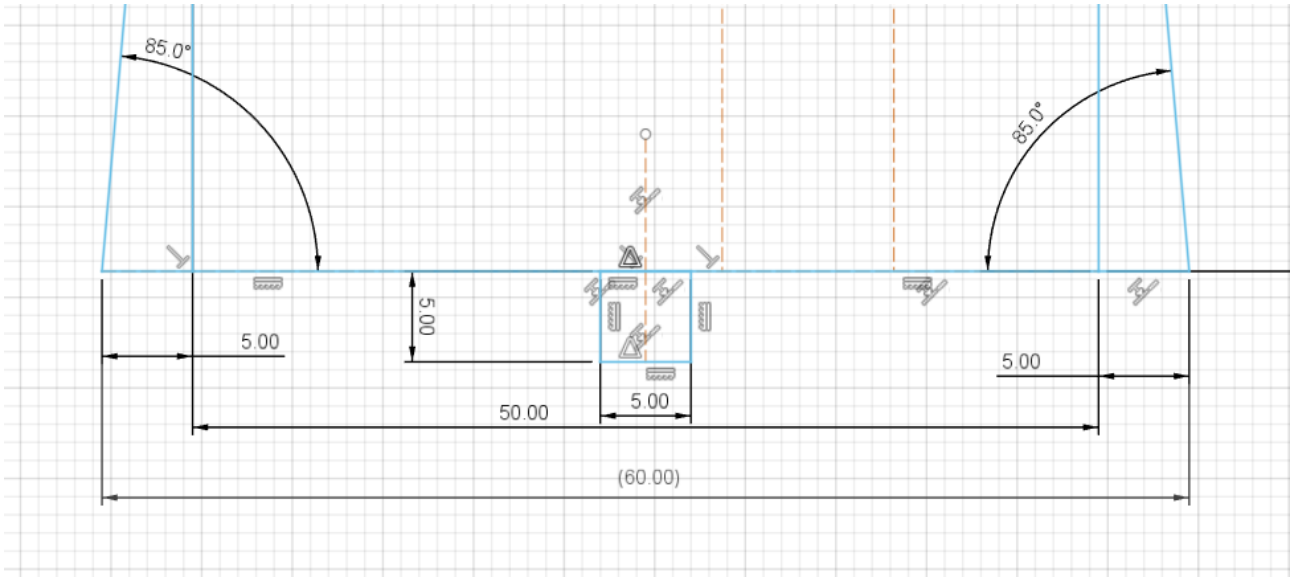


Shoulders

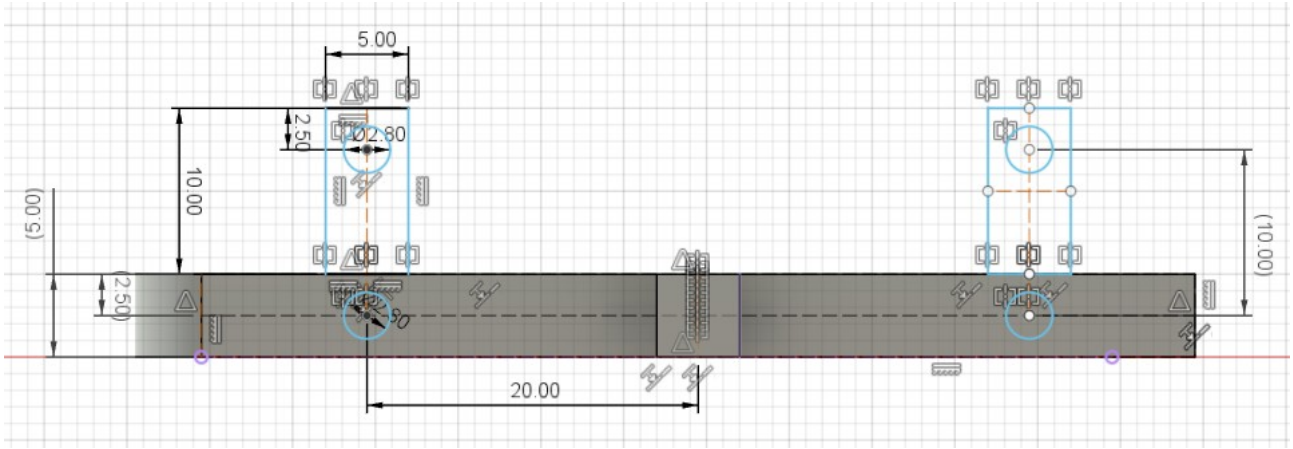
Design

Shoulder Base

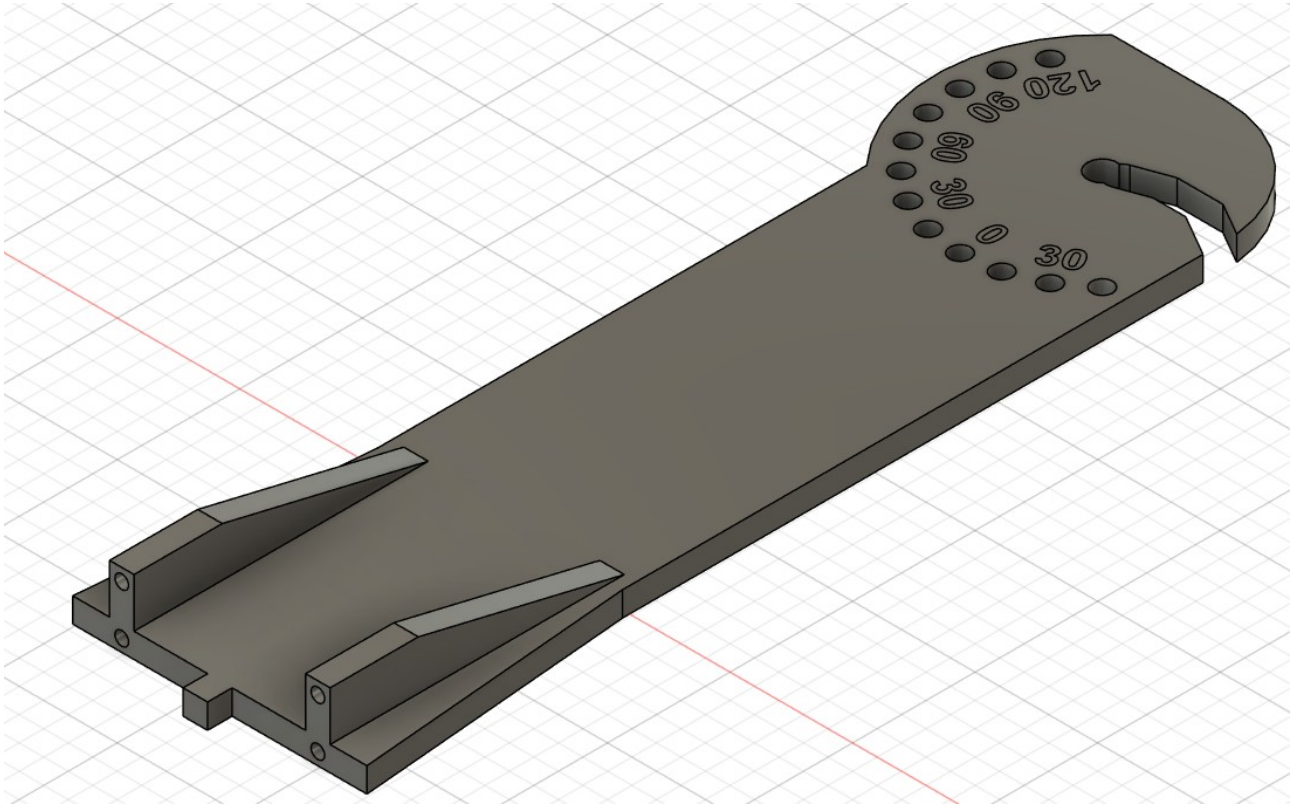
I add 5 mm each side to reach 60 mm width. This makes possible to create a more stiff base plate and the dimension is the same as widely used 60 mm Bosch profiles.



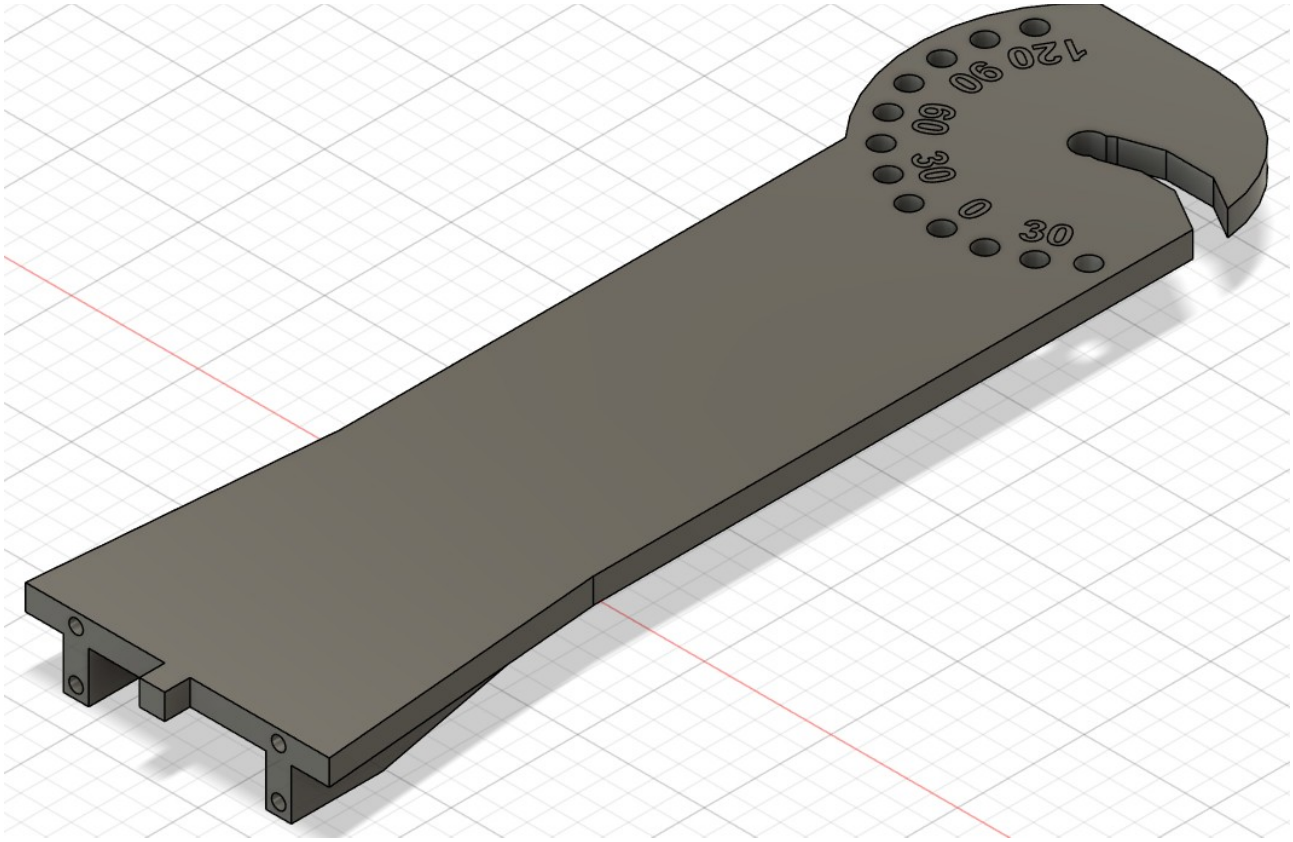
Ribs and mounting holes



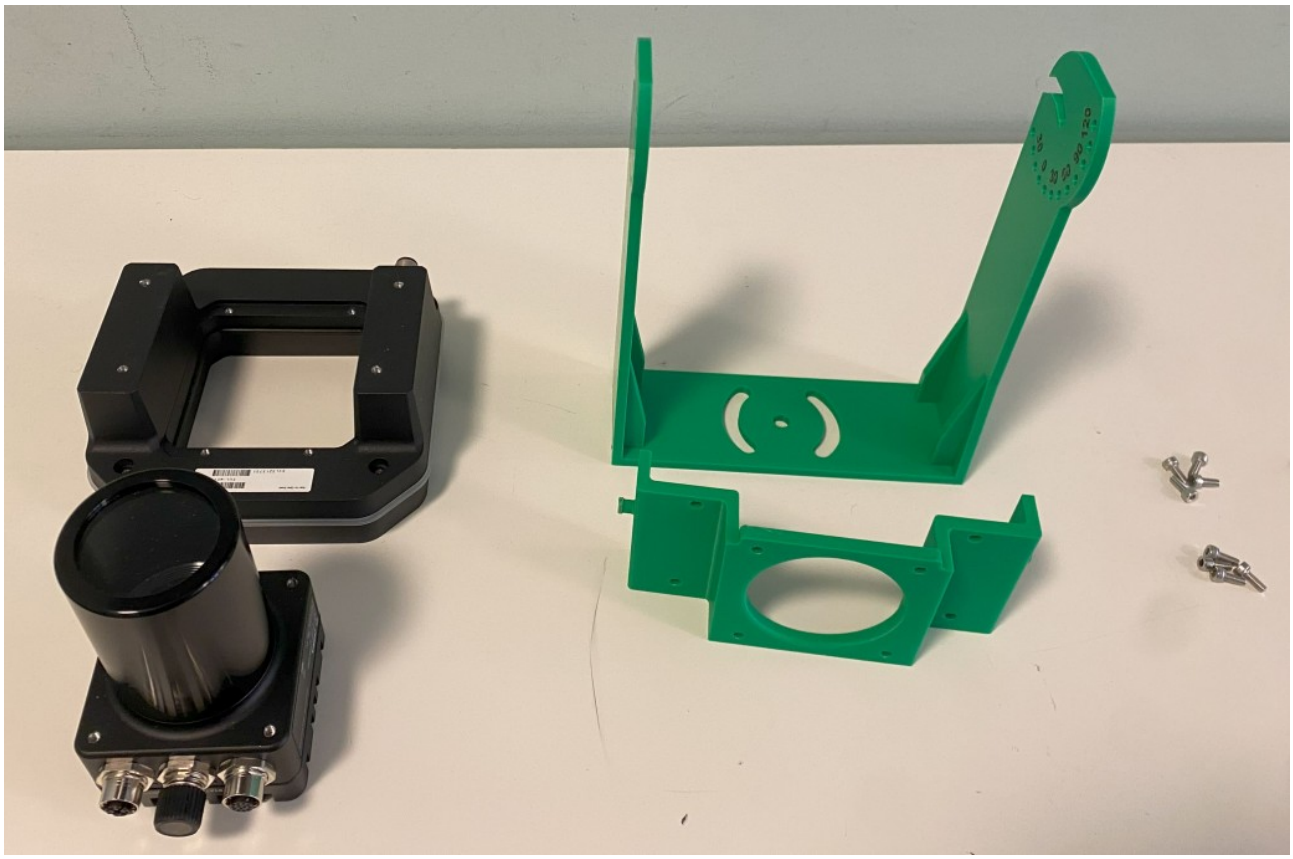
FS80 + UL Pivot Shoulder Right



FS80 + UL Pivot Shoulder Left



Final result



For Next Iteration

To be more error proof a small extrusion should be add to identify the correct bracket orientation.

This should be on the top side of the bracket so if we try to mount it upside down we can’t because of the connectors.

Reference

This is an example of Bosch profile with a 60 mm width.

https://store.boschrexroth.com/Tecnica-di-montaggio/Elementi-meccanici-di-base/Profilati-e-accessori/Profilo?cclcl=it_IT