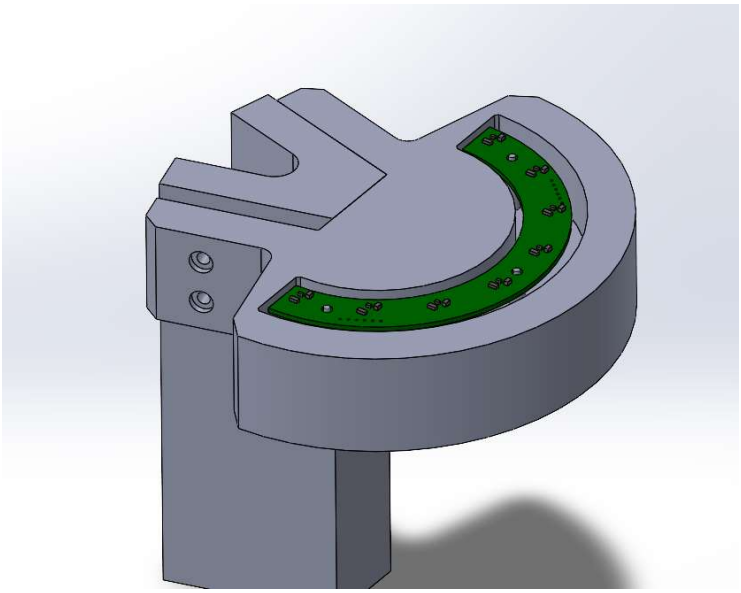
Boom Sensor Mount

Mechanical Design in Solidworks, 3D Printing

Description:
This project was done for my design team, UBC Sailbot. This design team develops robotic sailboats which can make autonomous voyages across large oceanic pathways. This specific project is related to the boat's boom sensor which measures the angular position of the boat's boom for control purposes.

The goal of the project was to design and build a mechanical mount for the boom sensor described above. This sensor is a semi-circular PCB (shown below in Green) which needs to be installed on the mast of the boat. In a team of 2, I conceptualized a design which would work for the described requirements and modelled the system in Solidworks. The following are some pictures for the design and the final device:



Key Features:

- Custom V-Shaped profile to fit onto non-circular mast
- Industrial hose clamps used to secure entire apparatus to mast
- Heat-set inserts used to secure fasteners in 3D printed PLA
- PCB potted to seal sensitive electronics from harsh environmental conditions