



Pipes, cameras, lights, integration and latest design

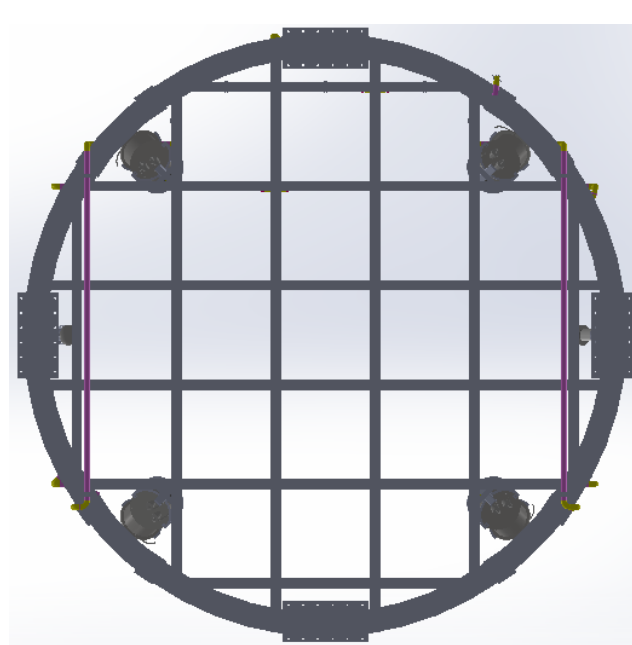
Mihai Marius Siabu

Alejandro Taboada

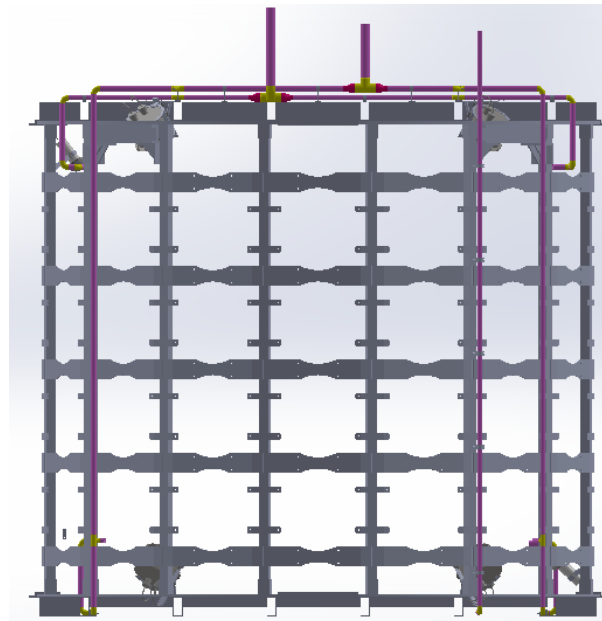
Characteristics:

- The system is composed of:
 - 2 Main water pipes $\varnothing 5\text{cm}$ (2") branching out into:
 - 8 Inlets/Outlets $\varnothing 2,5\text{cm}$ (1")
 - 1 Straight water removal only pipe $\varnothing 2,5\text{cm}$ (1")
- The pipes are held in place by 23 custom made brackets that are welded to the WCTE Support structure
- All the outlets are directed away from the cameras such that the flow will not disturb the image collection

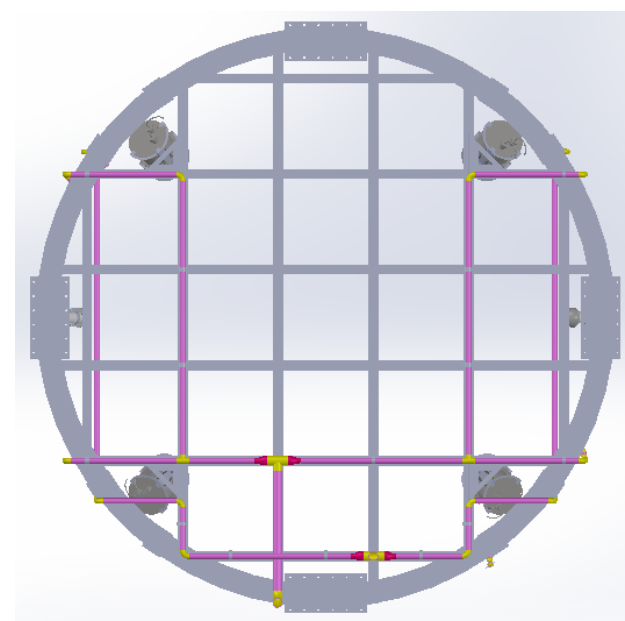
Setup



Bottom View

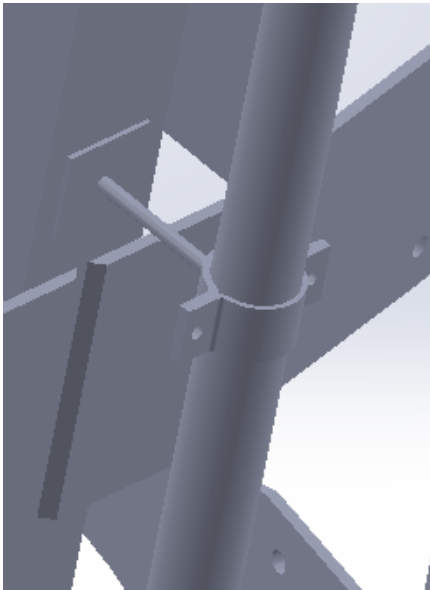


Side View

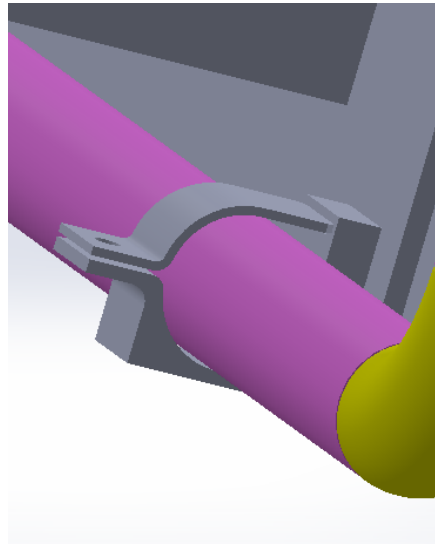


Top View

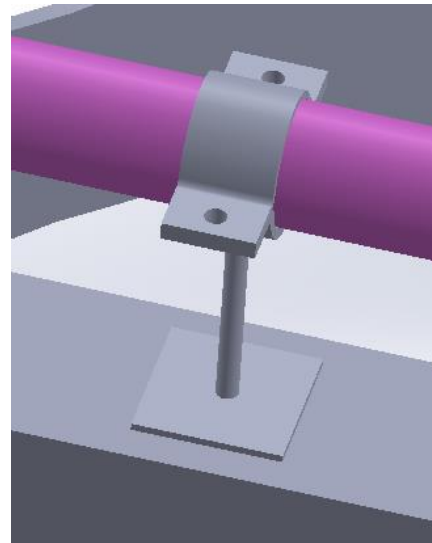
Fixing to structure



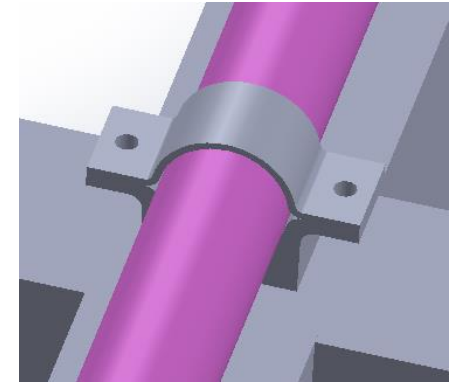
Side Bracket



Bottom
Bracket



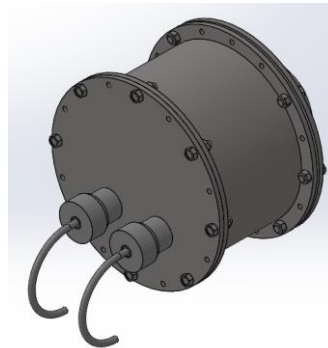
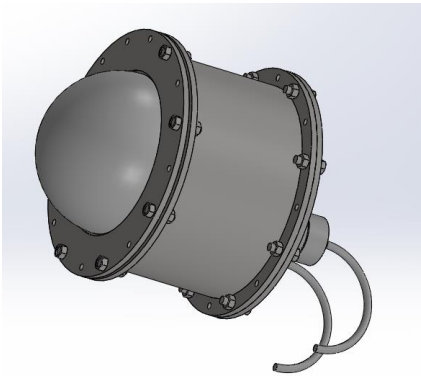
Top Support
Bracket



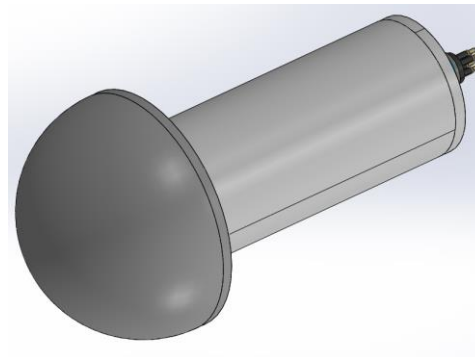
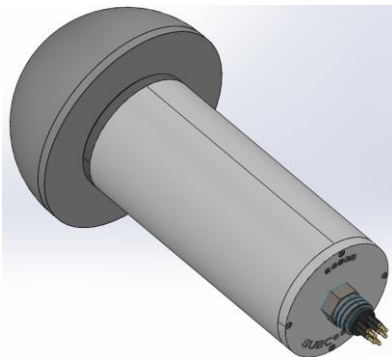
Top Bracket

Photogrammetry system components :

- Camera waterproof housing:
 - Connectors were updated to improve water-tightness
 - Cable bending radius: 5.5cm

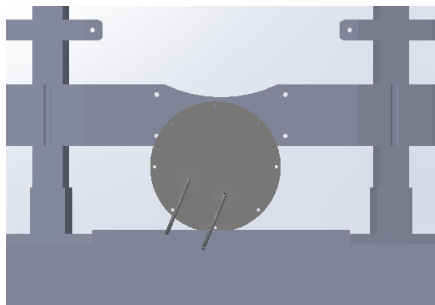


- Lights with diffuser

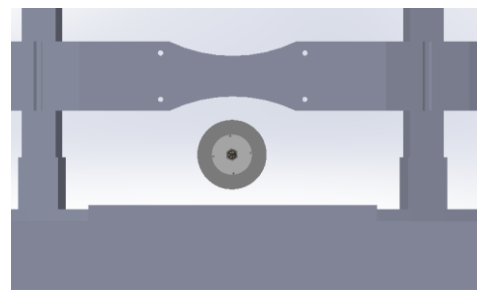


Assembly requisites:

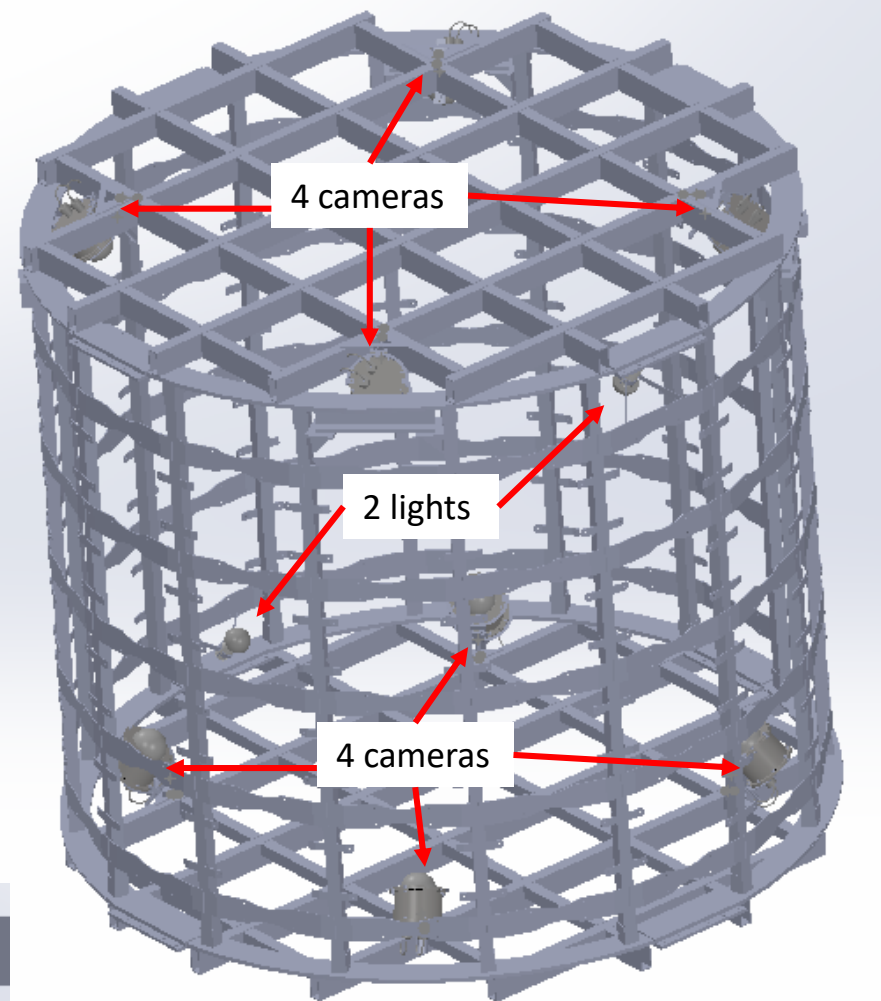
- 8 cameras (4 + 4)
- 2 lights with diffuser (1 + 1)
- Tilt angle: 53° from the horizontal
- Shadowing effect on adjacent PMTs must be minimized
- Cameras must be installed before the assembly of the structure barrel and top end cap
- Lights can be installed after the whole structure is assembled



Camera housing rear view



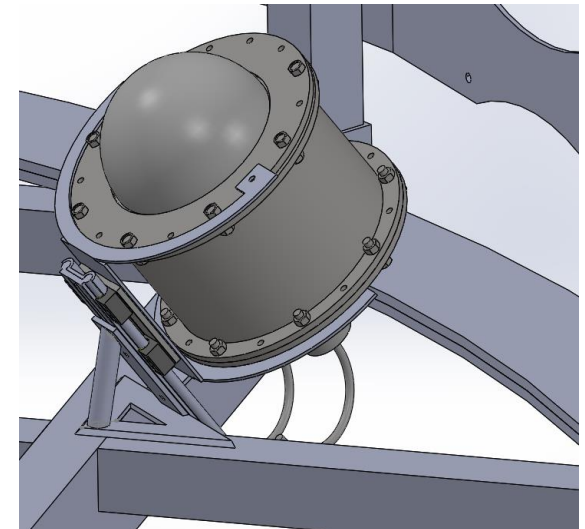
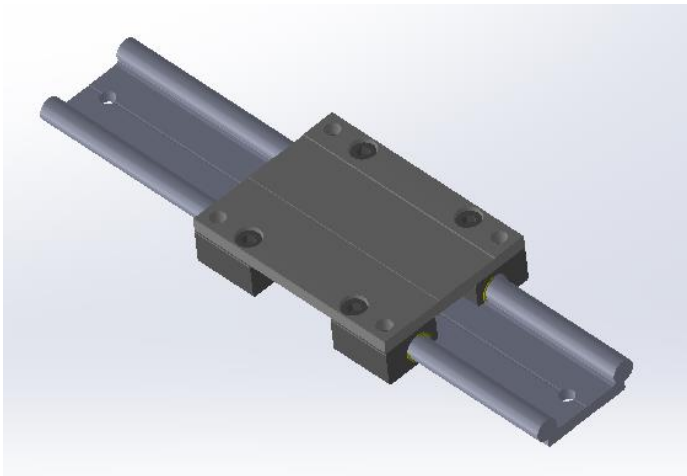
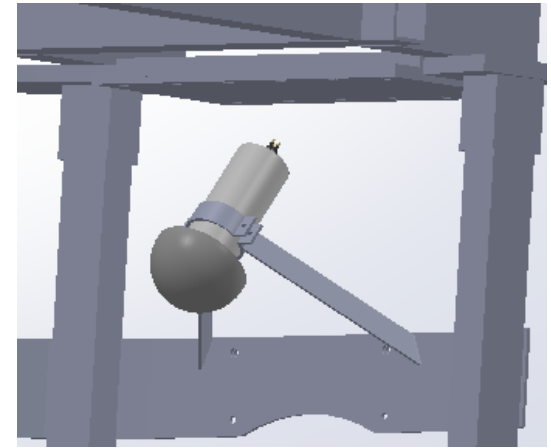
Light rear view



Anchoring systems:

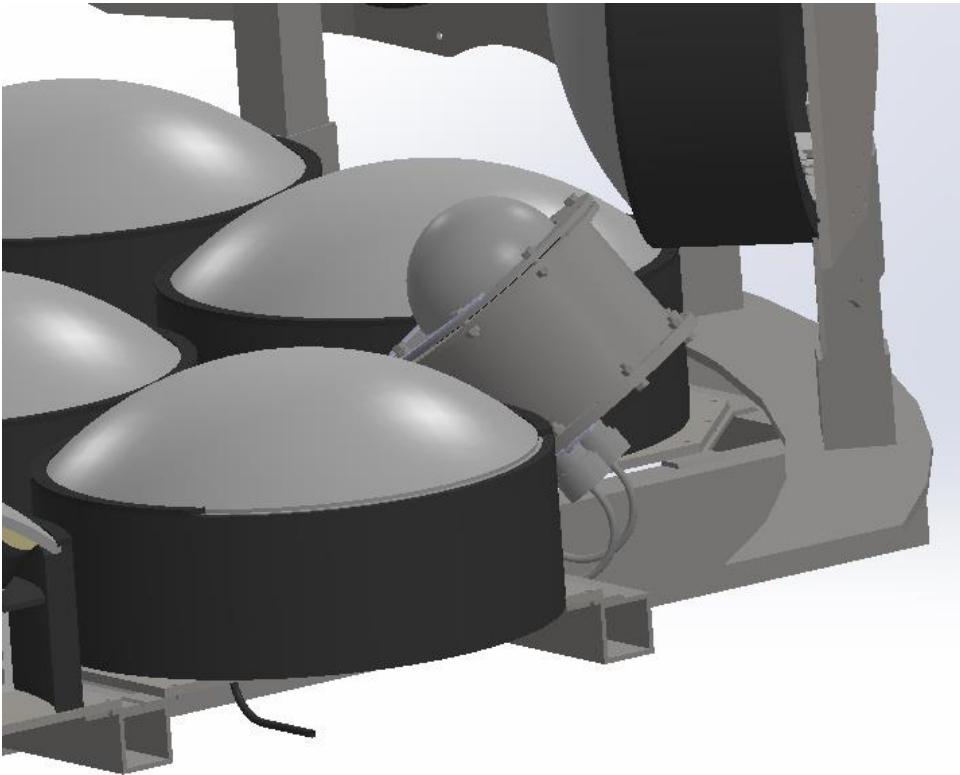
- Lights: fixed system bolted to support structure

- Cameras: no lubricant rail solution
 - Iglus drylin® W complete slide system WW
 - Custom stainless steel rail
 - Bearings: Iglide A180 or Iglide X series bearing (water soaking tests ongoing by O. Jeremy)

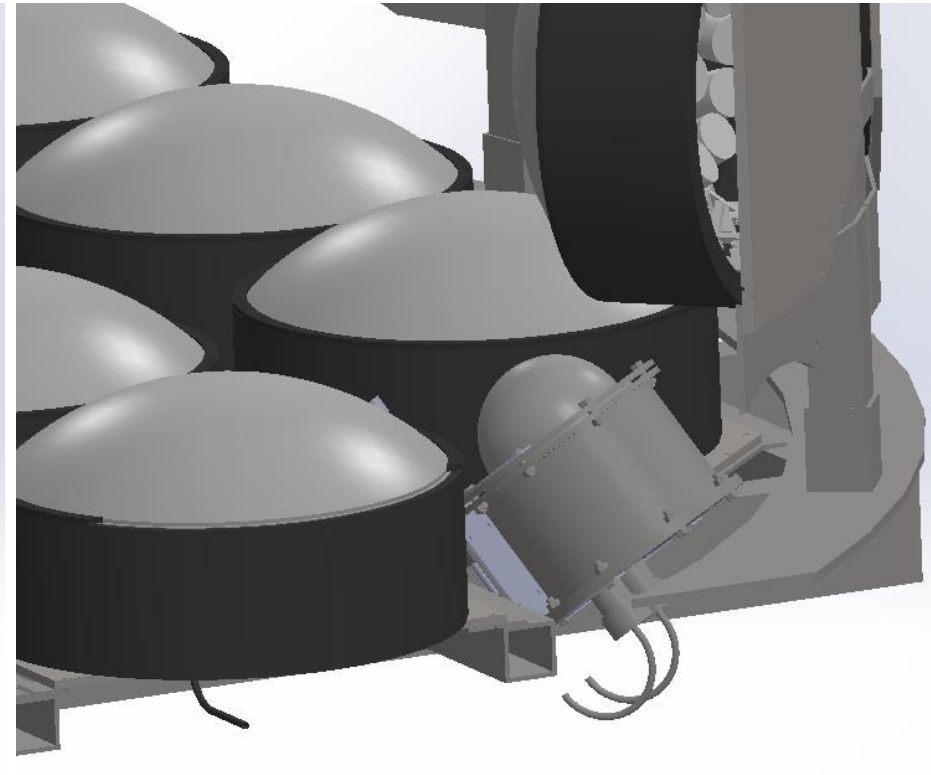


Assembly and operation:

Assembly phase



Operation phase



Clearance for the cable and connectors is ensured