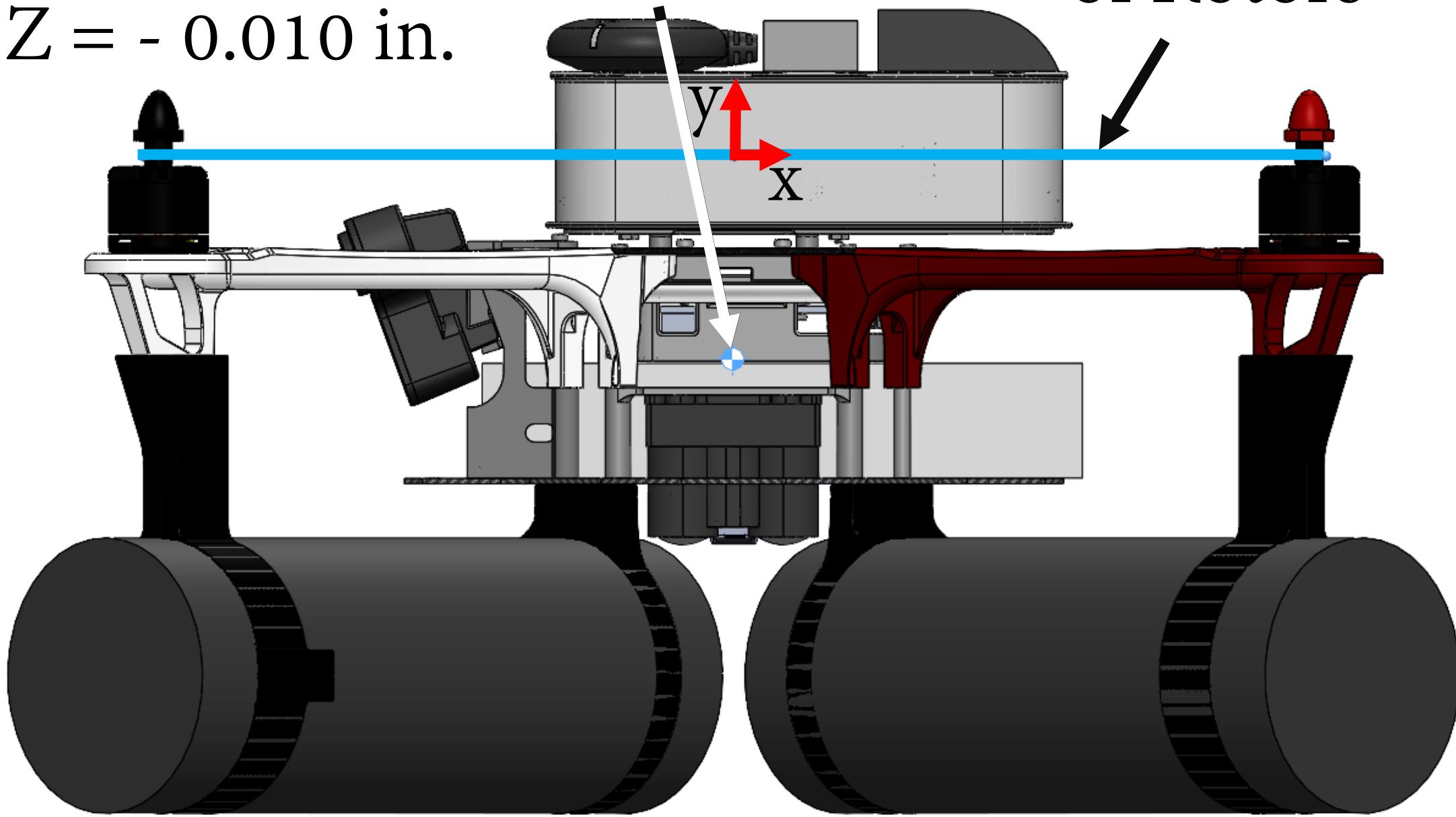
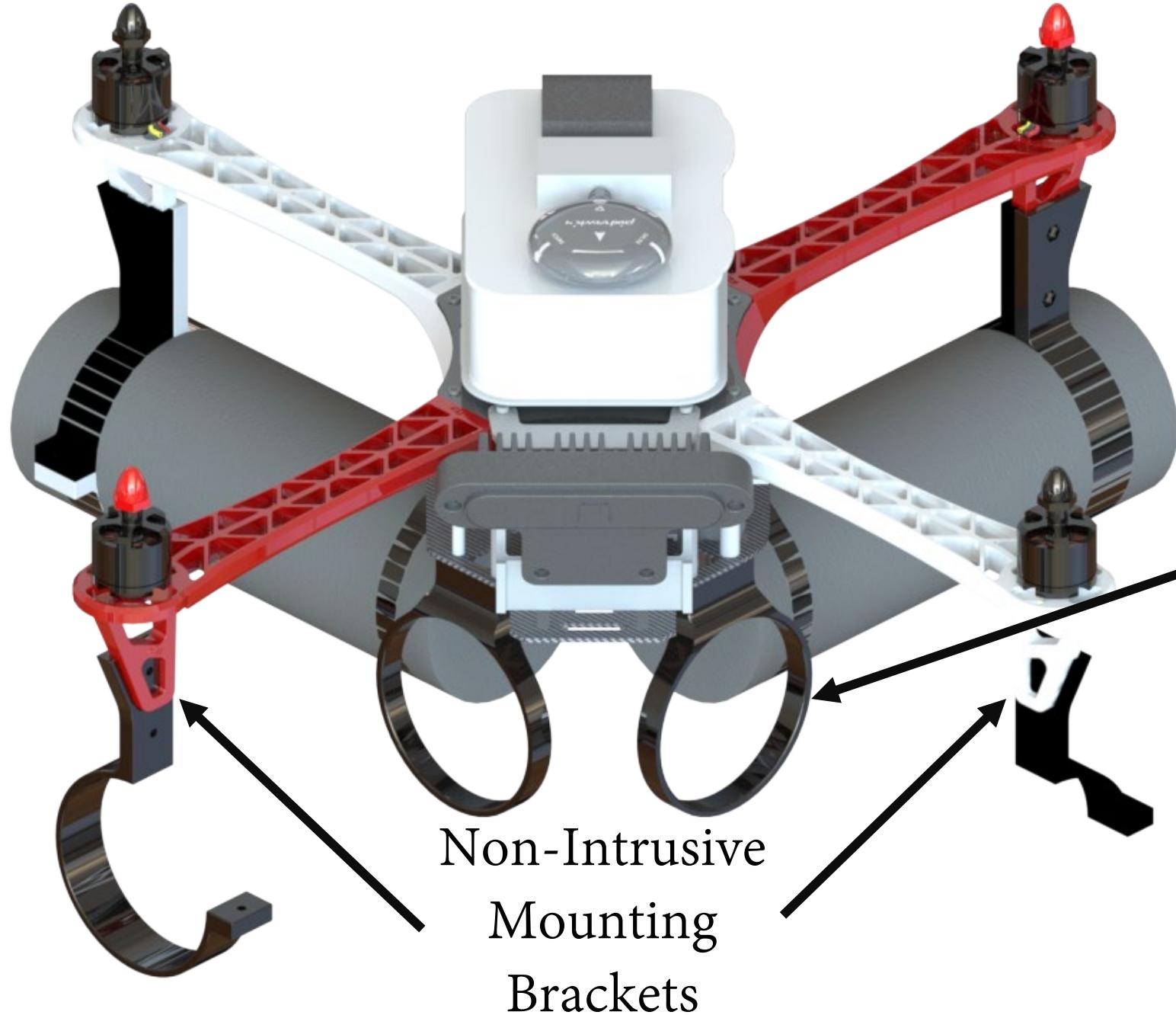


$X = -0.025$ in.
 $Y = -2.163$ in.
 $Z = -0.010$ in.

Center
of Mass

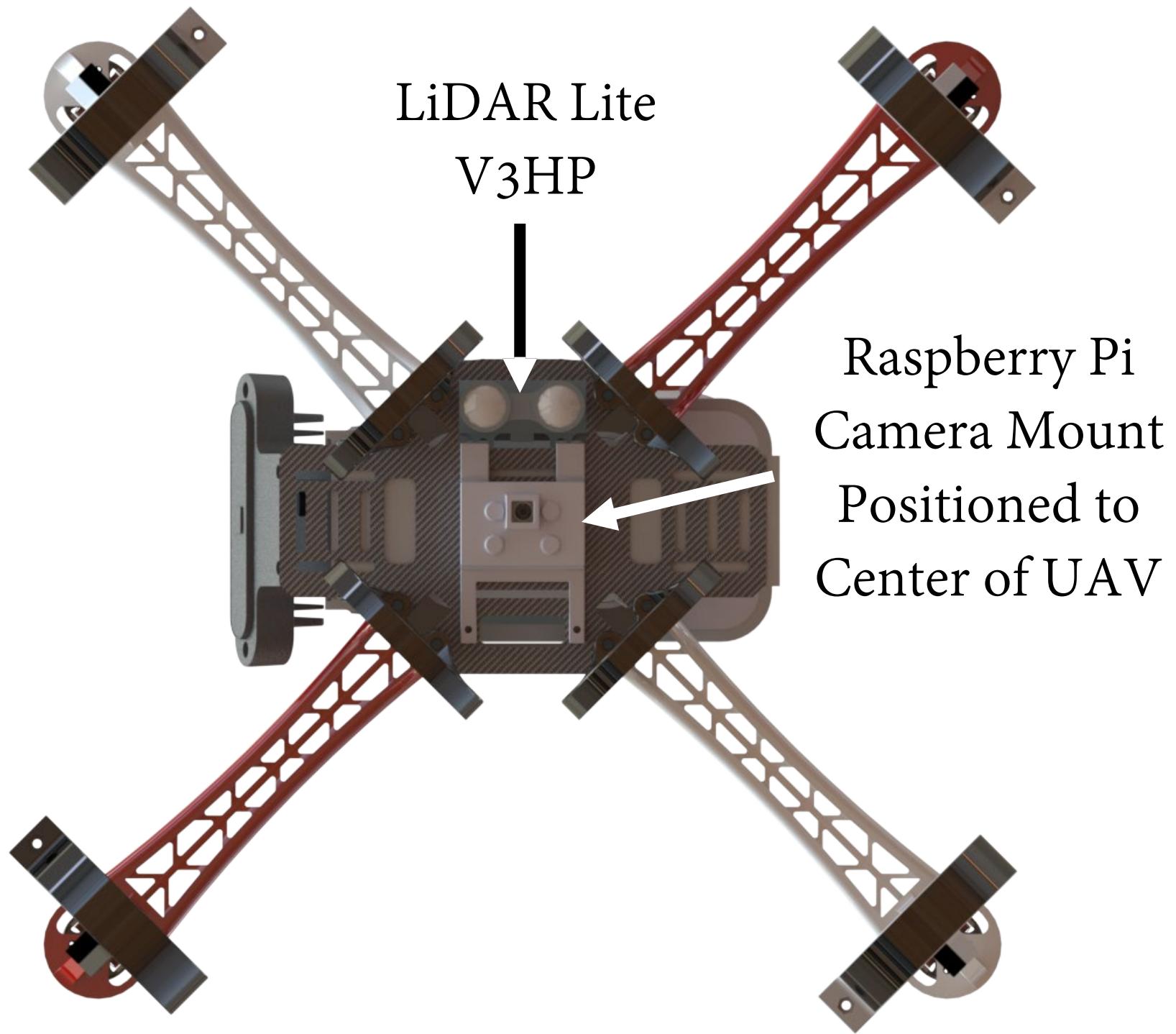
Horizontal Plane
of Rotors

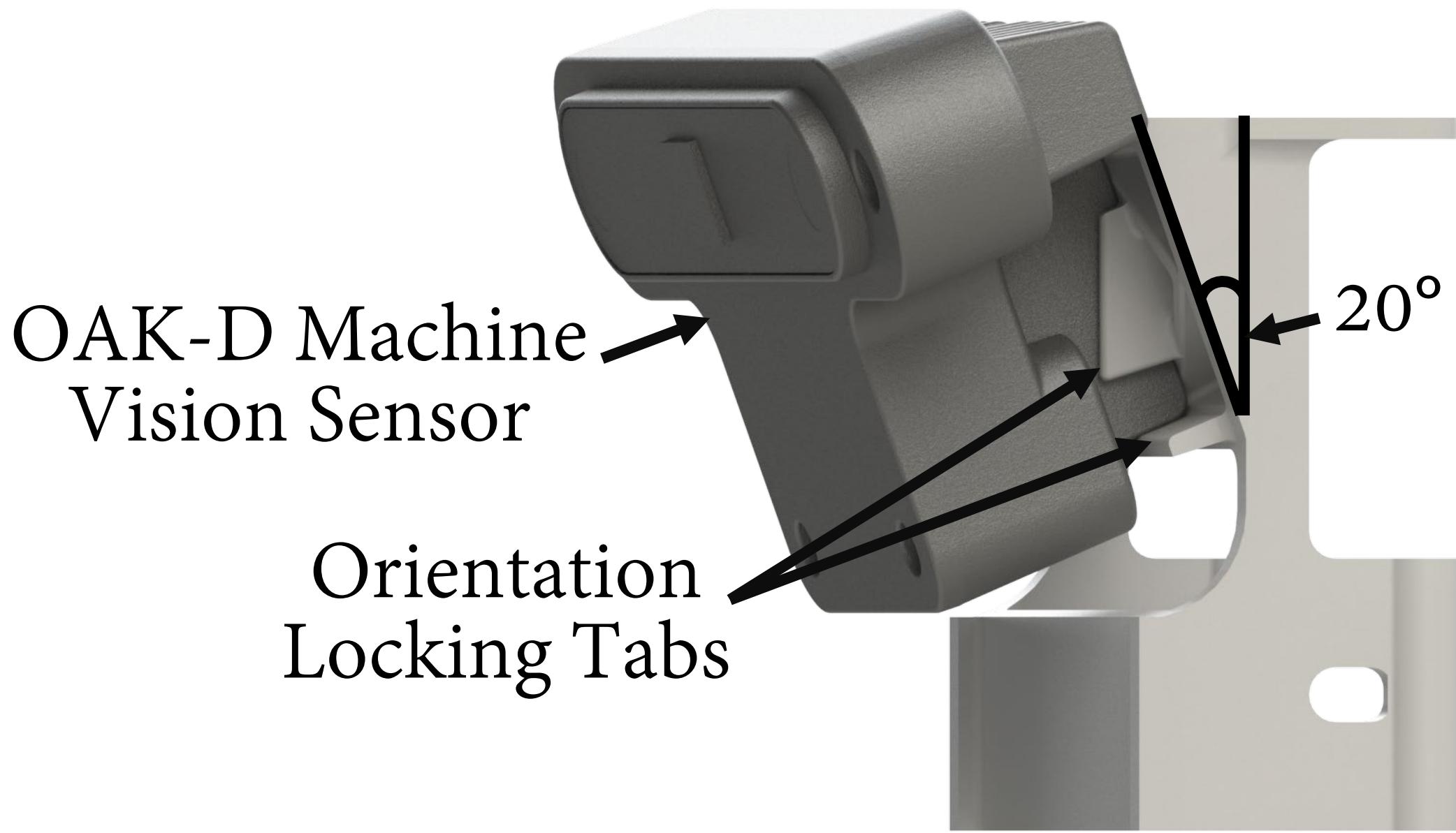




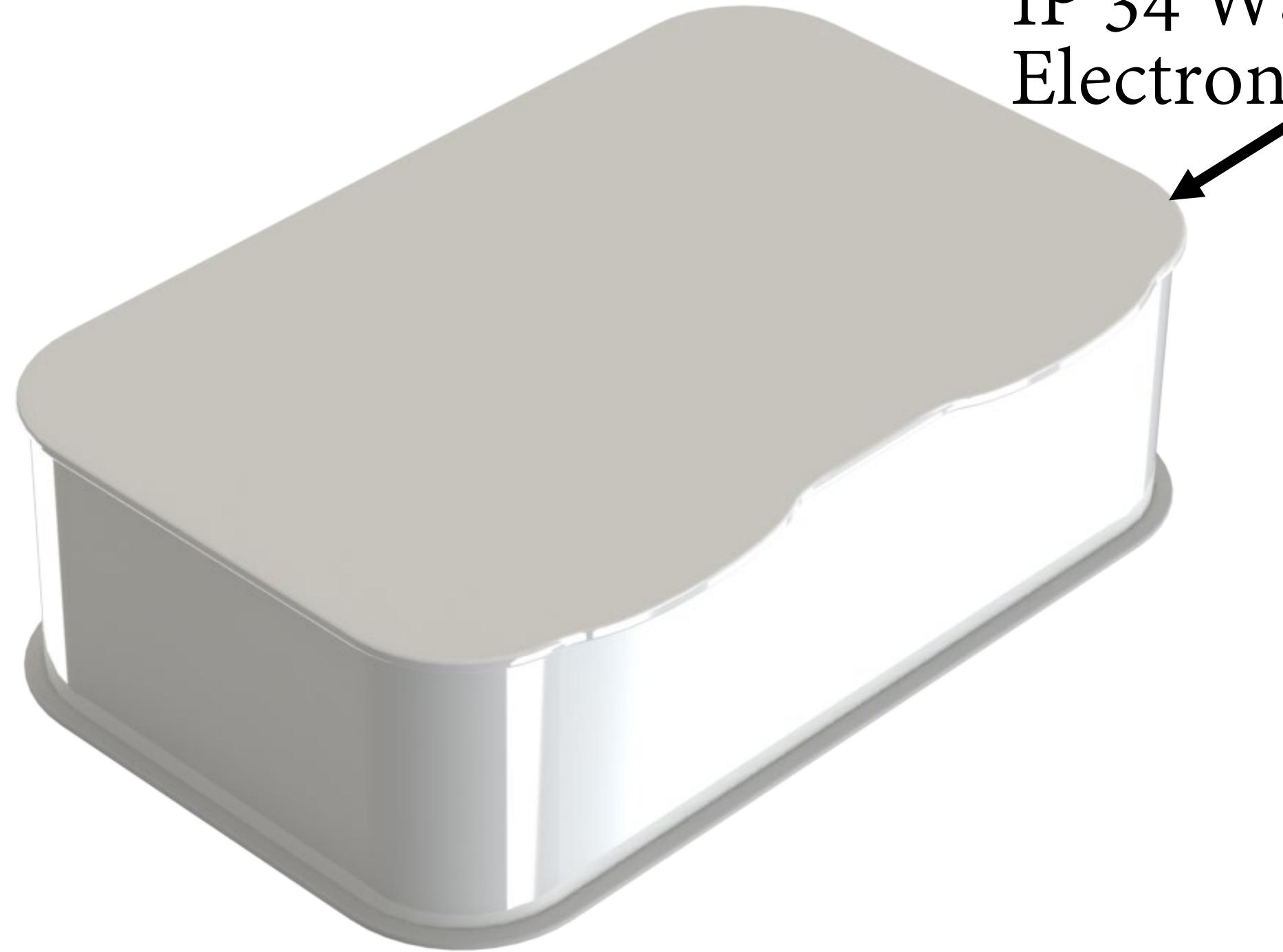
Support
Bracket

Non-Intrusive
Mounting
Brackets



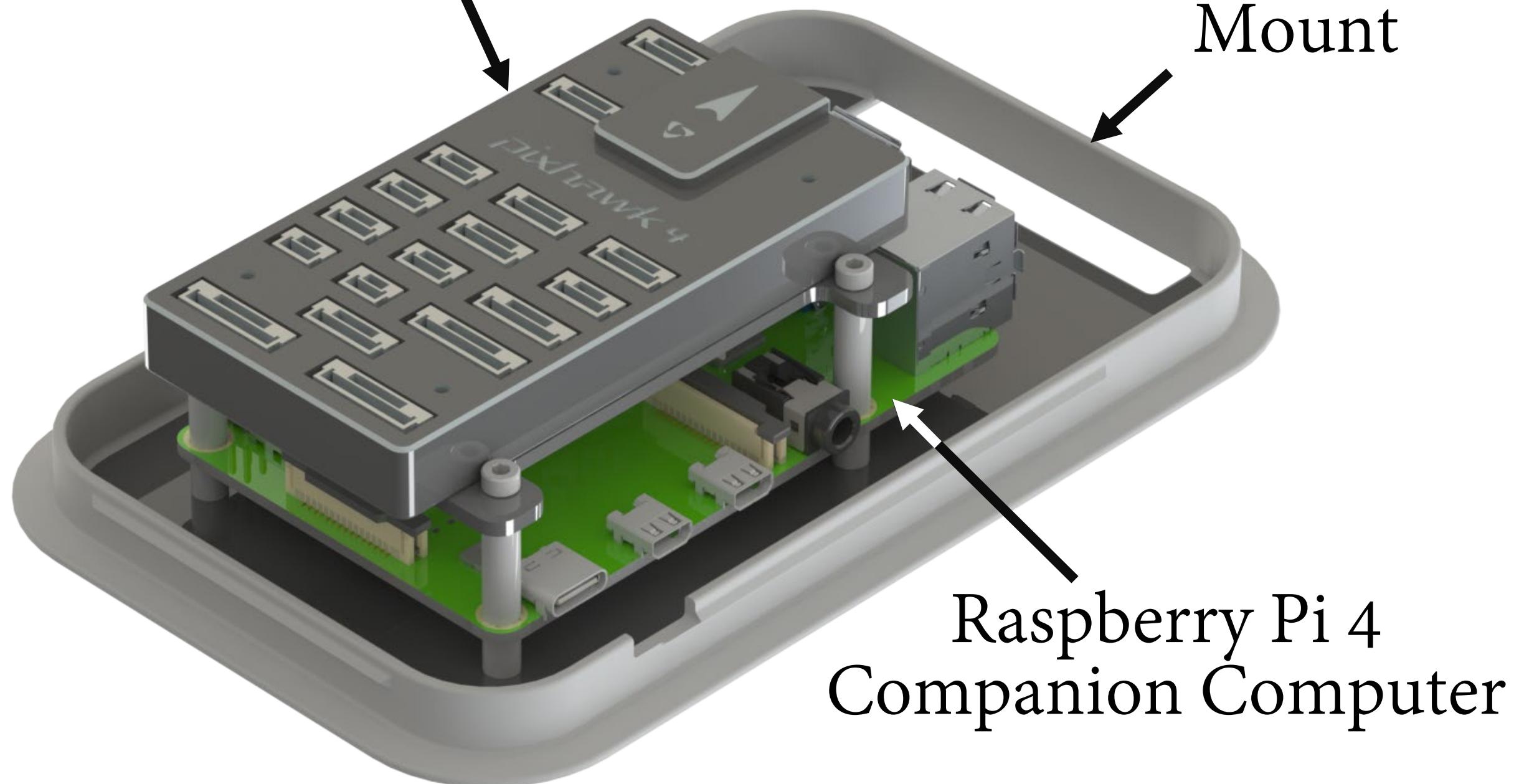


IP 34 Water Resistant
Electronics Enclosure

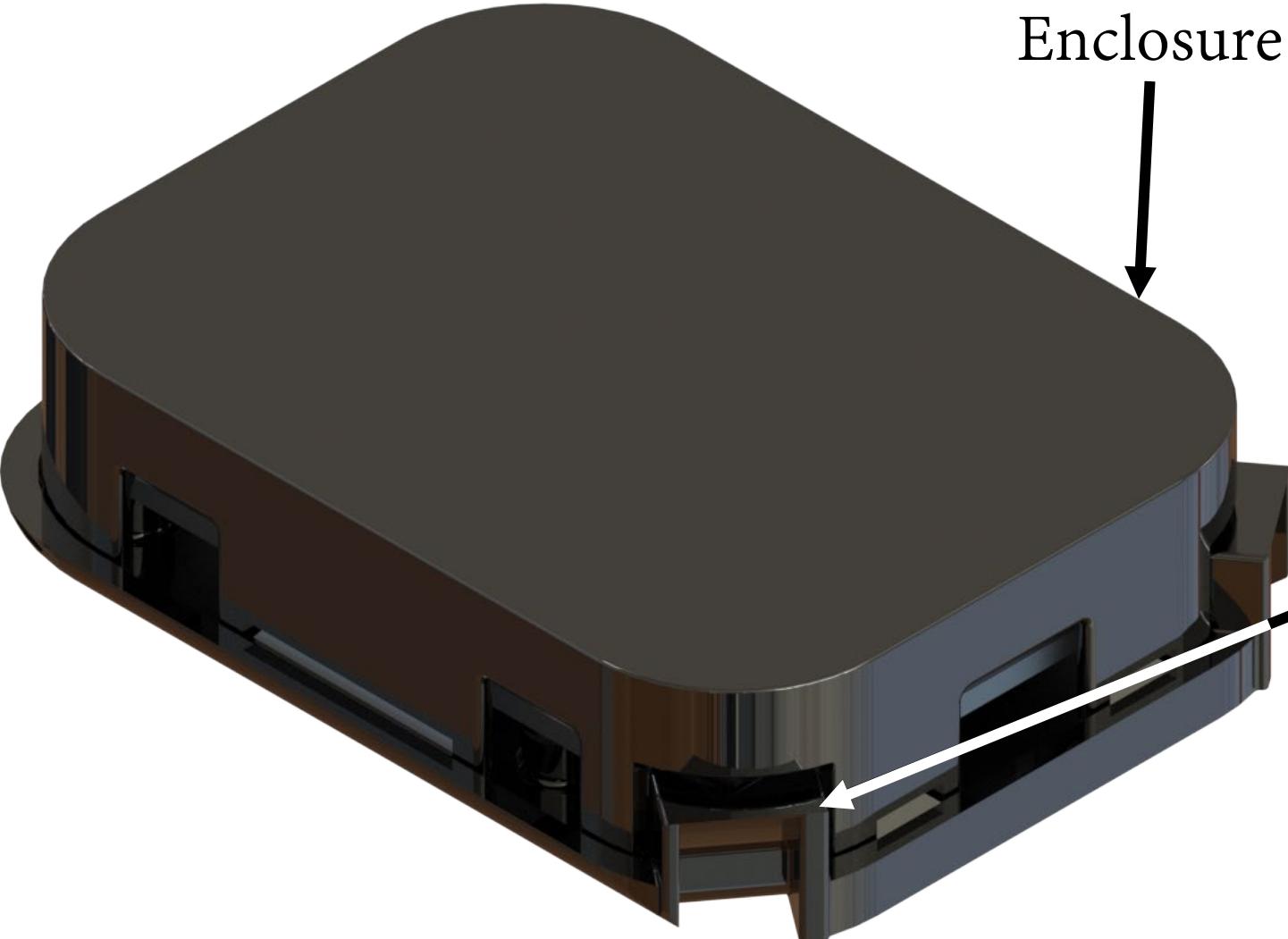


Pixhawk 4 FCU

Enclosure
Mount



Raspberry Pi 4
Companion Computer



Power Module
Enclosure

Cutouts to Fit
Around F450
Arms

E-Max

Brushless DC Motor

RC Receiver

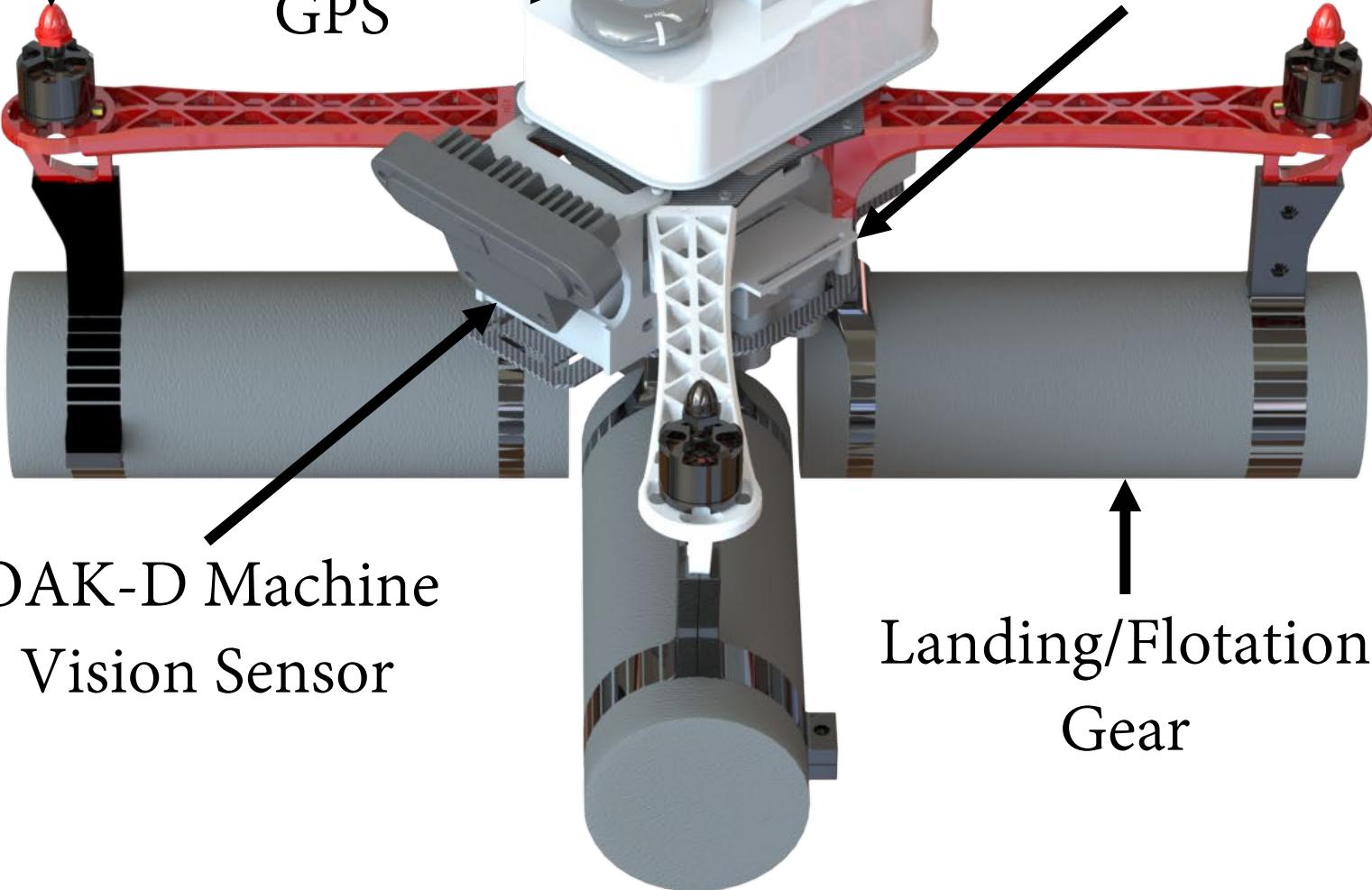
RTK-GPS Antenna

IP 34 Water Resistant Electronics Enclosure

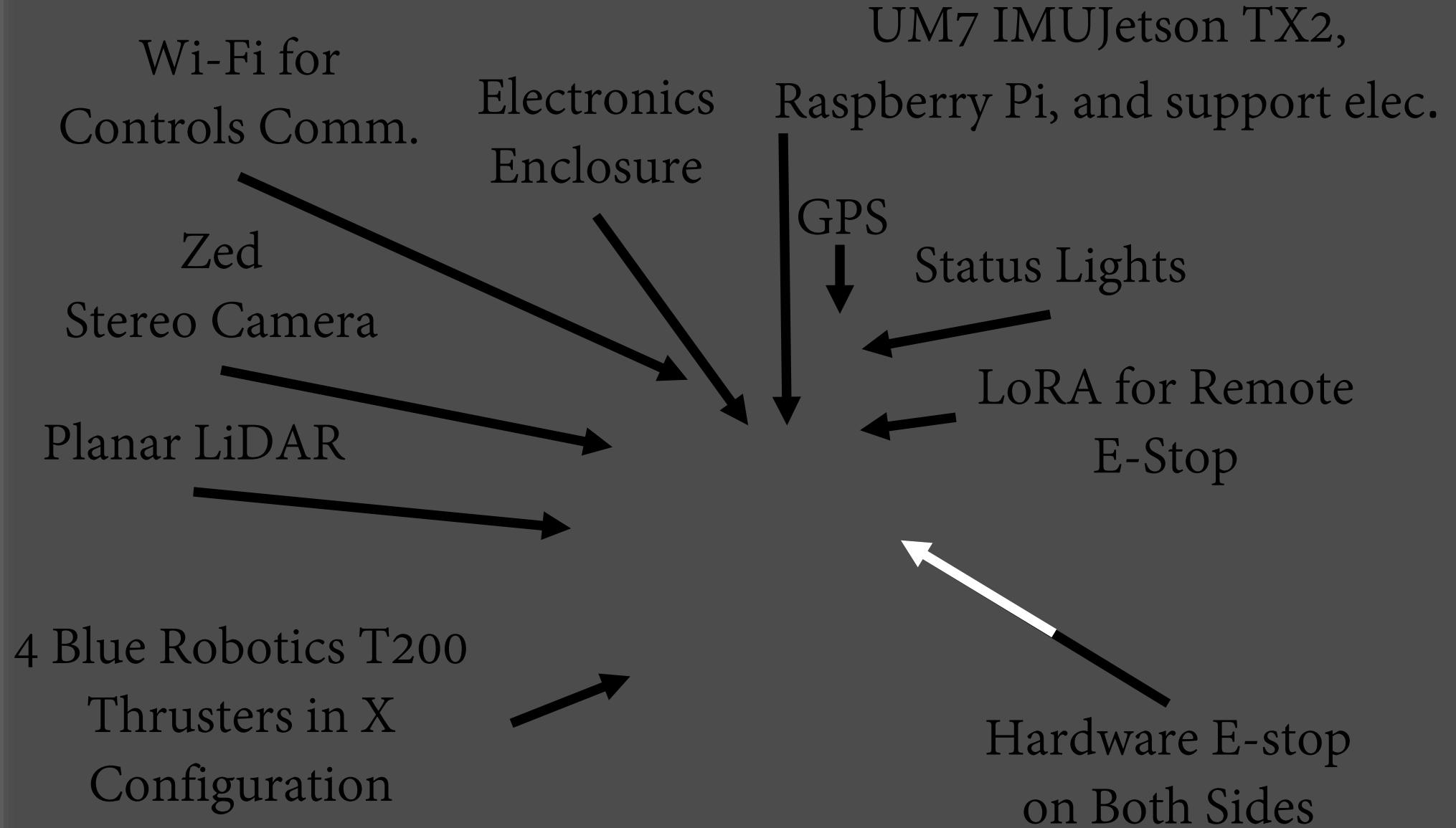
Motor

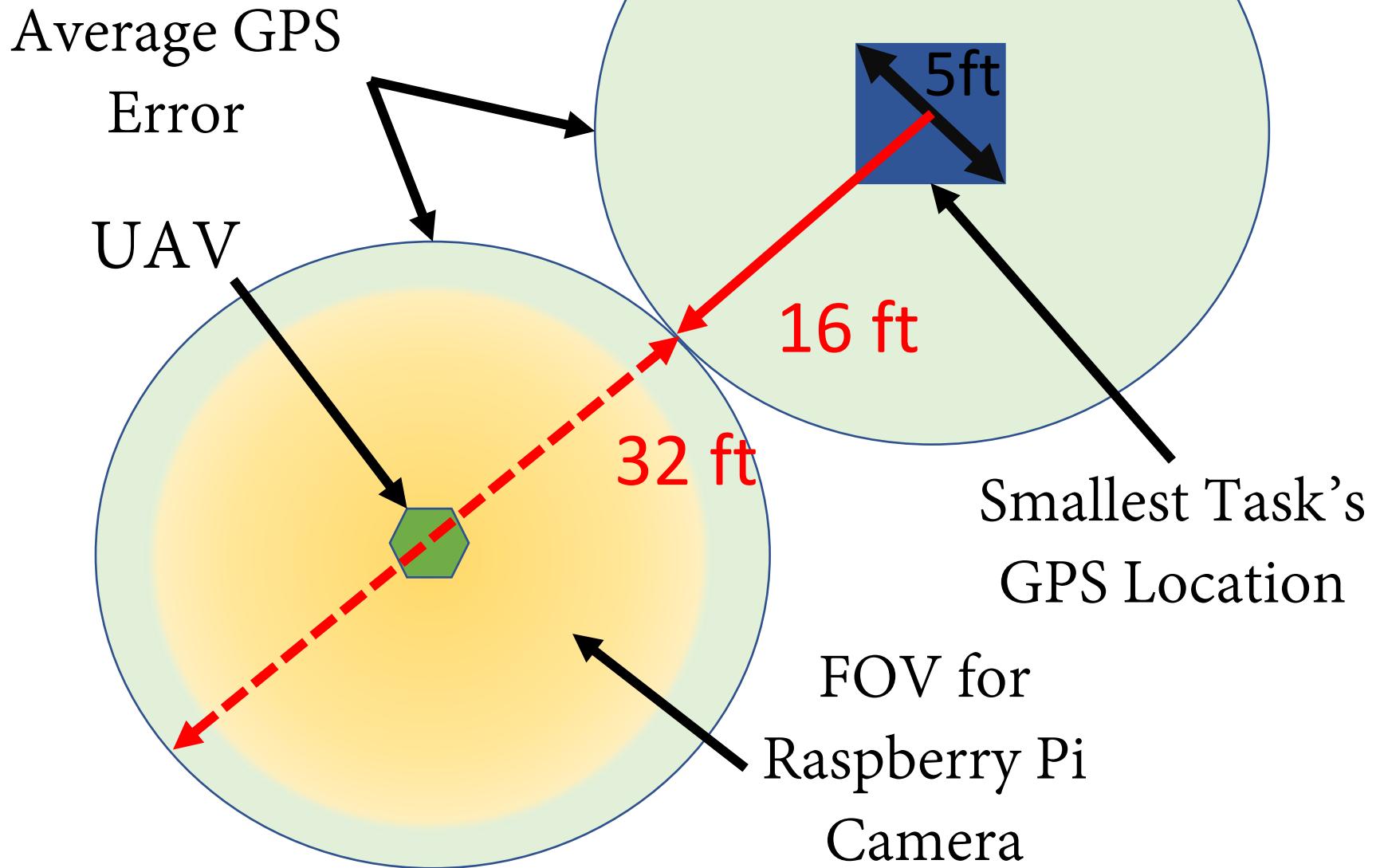
Standard GPS

Single Point LiDAR for Altitude Augmentation



OAK-D Machine Vision Sensor

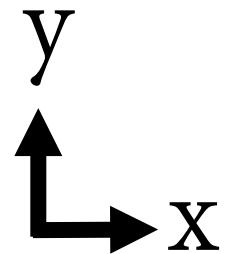




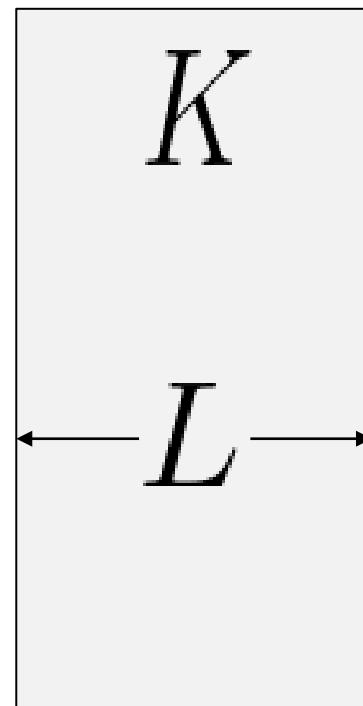
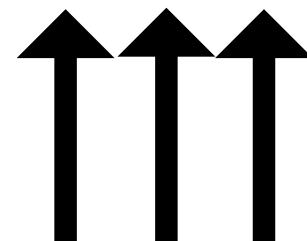
Outside Air

Enclosure
Wall

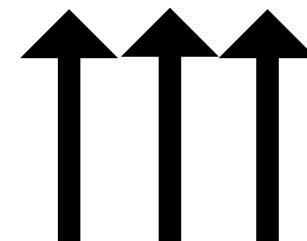
Inside Air



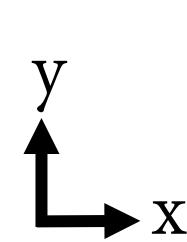
$$T_1 = 43^\circ C \quad h_1$$



$$h_2 \quad T_2 = 73^\circ C$$

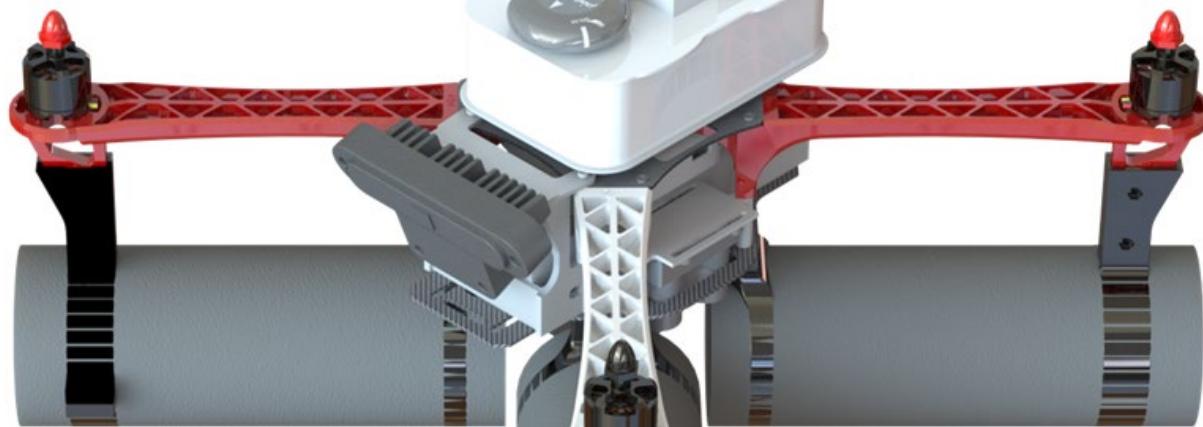


$$\frac{1}{h_1 A} \quad \frac{L}{K A} \quad \frac{1}{h_2 A} \quad T_1 \quad T_2$$

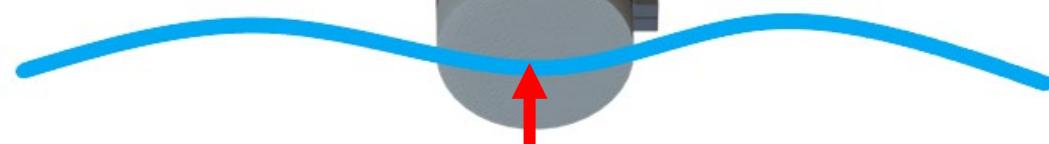


A 3D rendering of a quadcopter drone. A coordinate system is shown with the x-axis pointing right and the y-axis pointing up. A red arrow points downwards from the center of the drone, representing the direction of gravity.

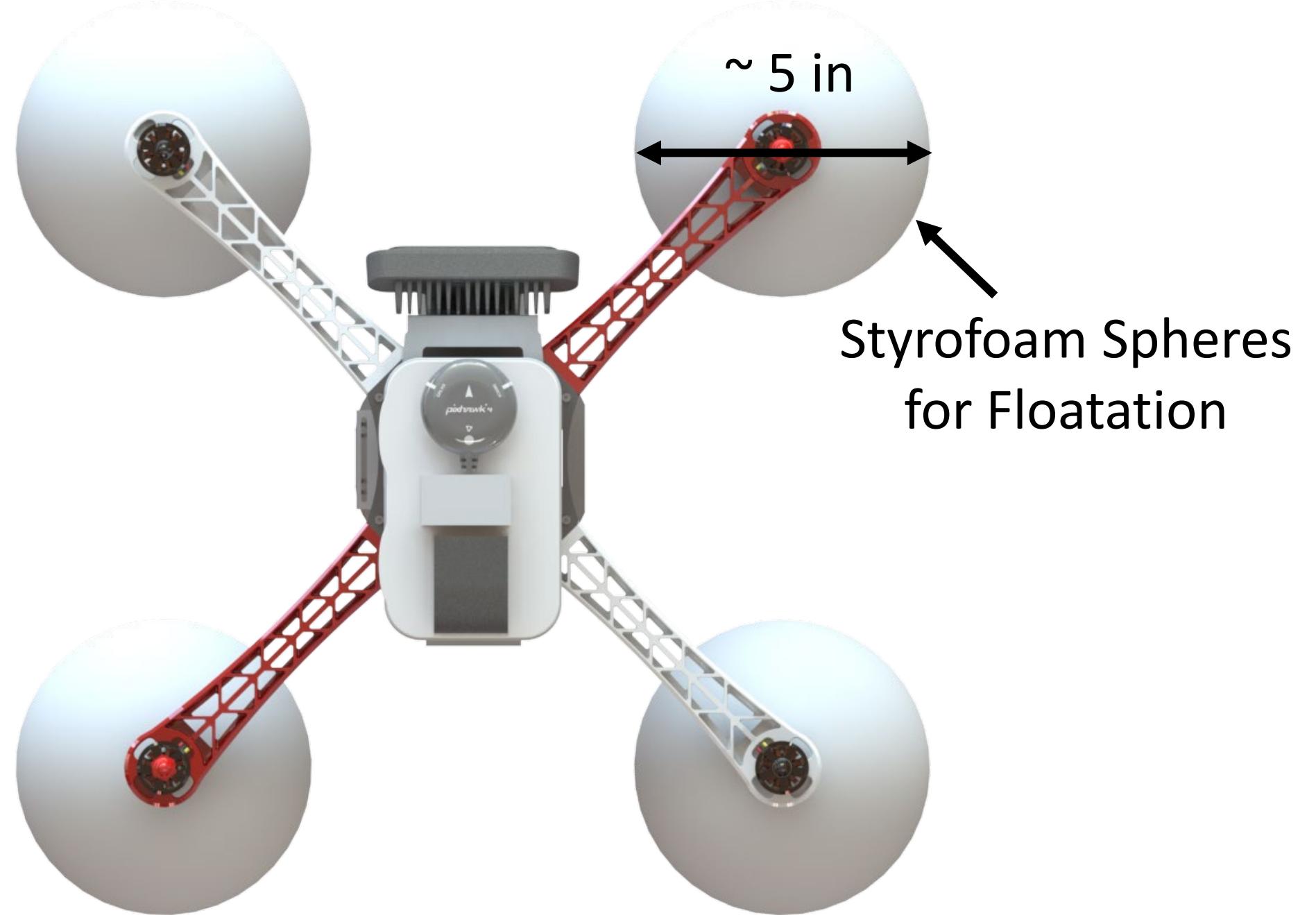
$$F_g \approx -18.84 \text{ N}$$



$$F.S. \approx 1.28$$



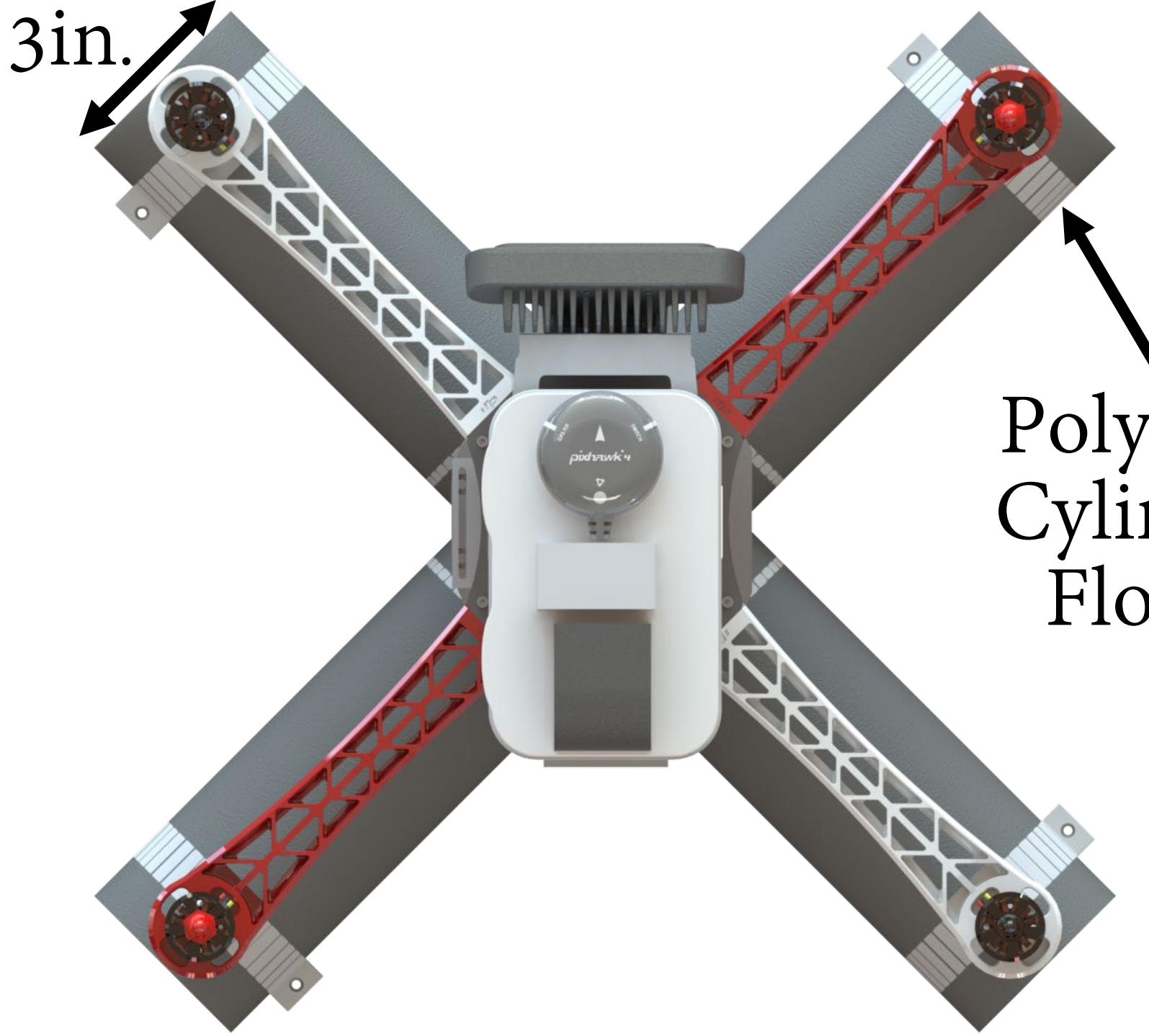
$$F_{buoyancy} \approx 24.17 \text{ N}$$





Styrofoam Square
for Floatation

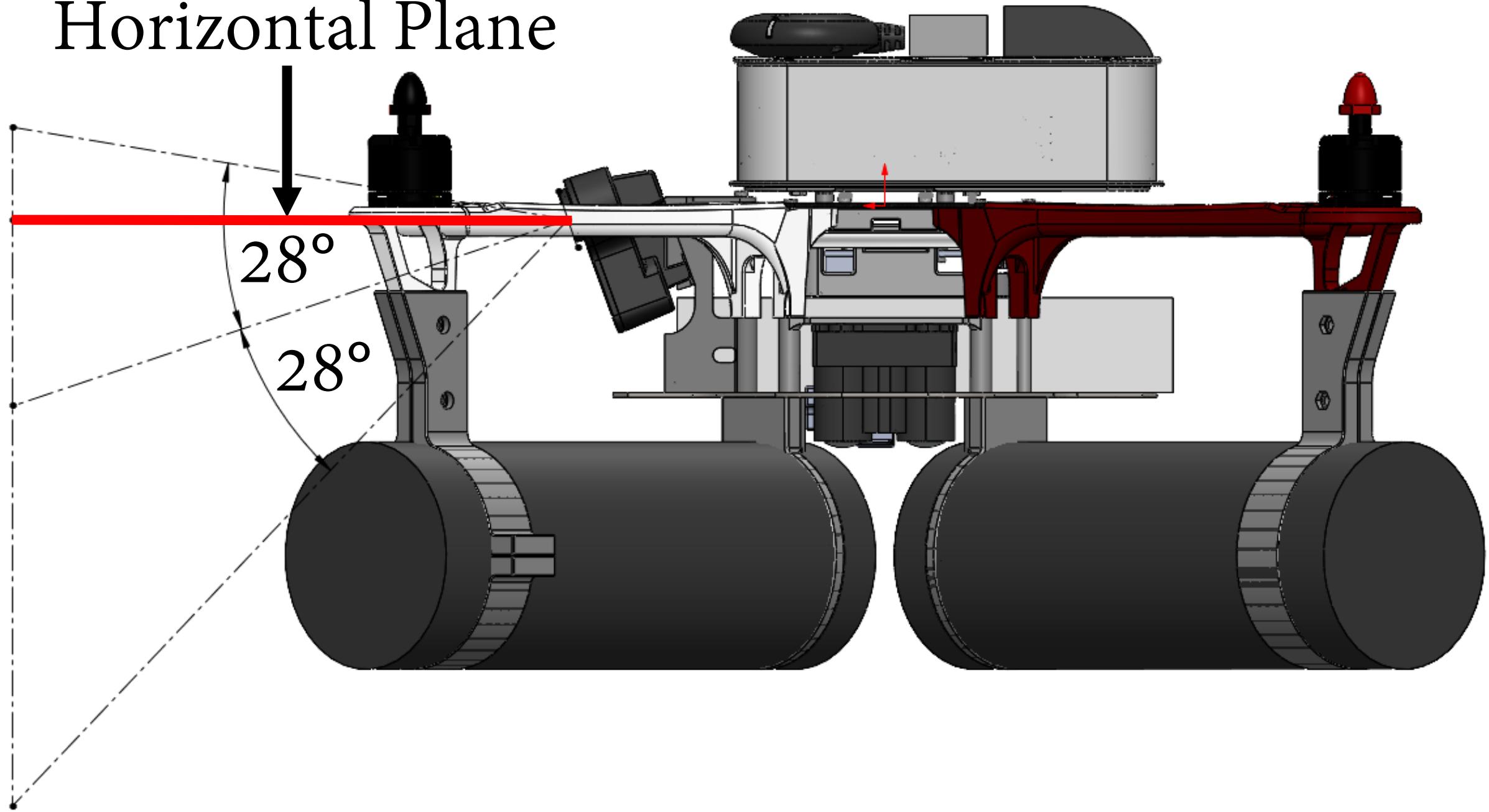
~ 2.25 in

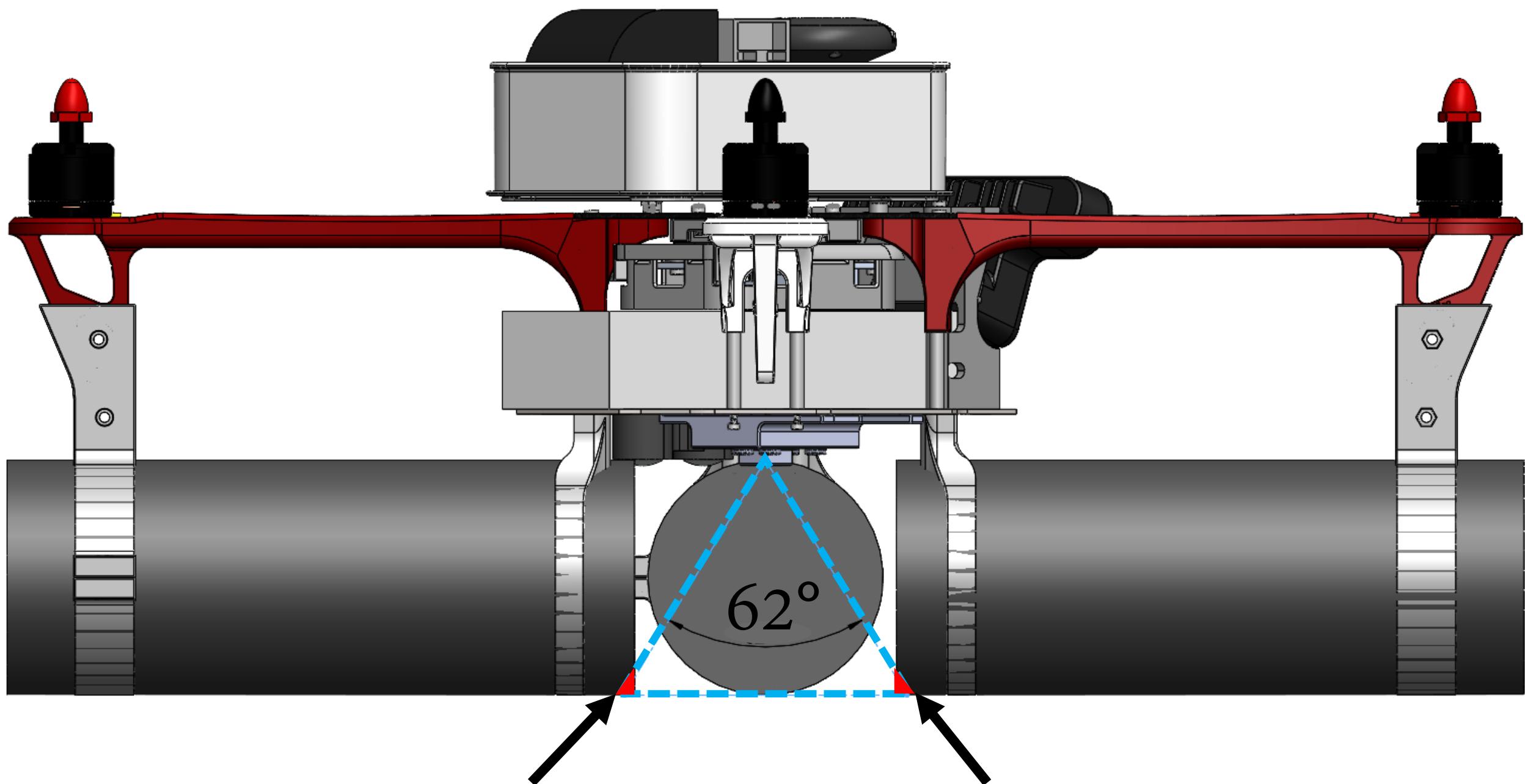


3in.

Polyethylene
Cylinders for
Floatation

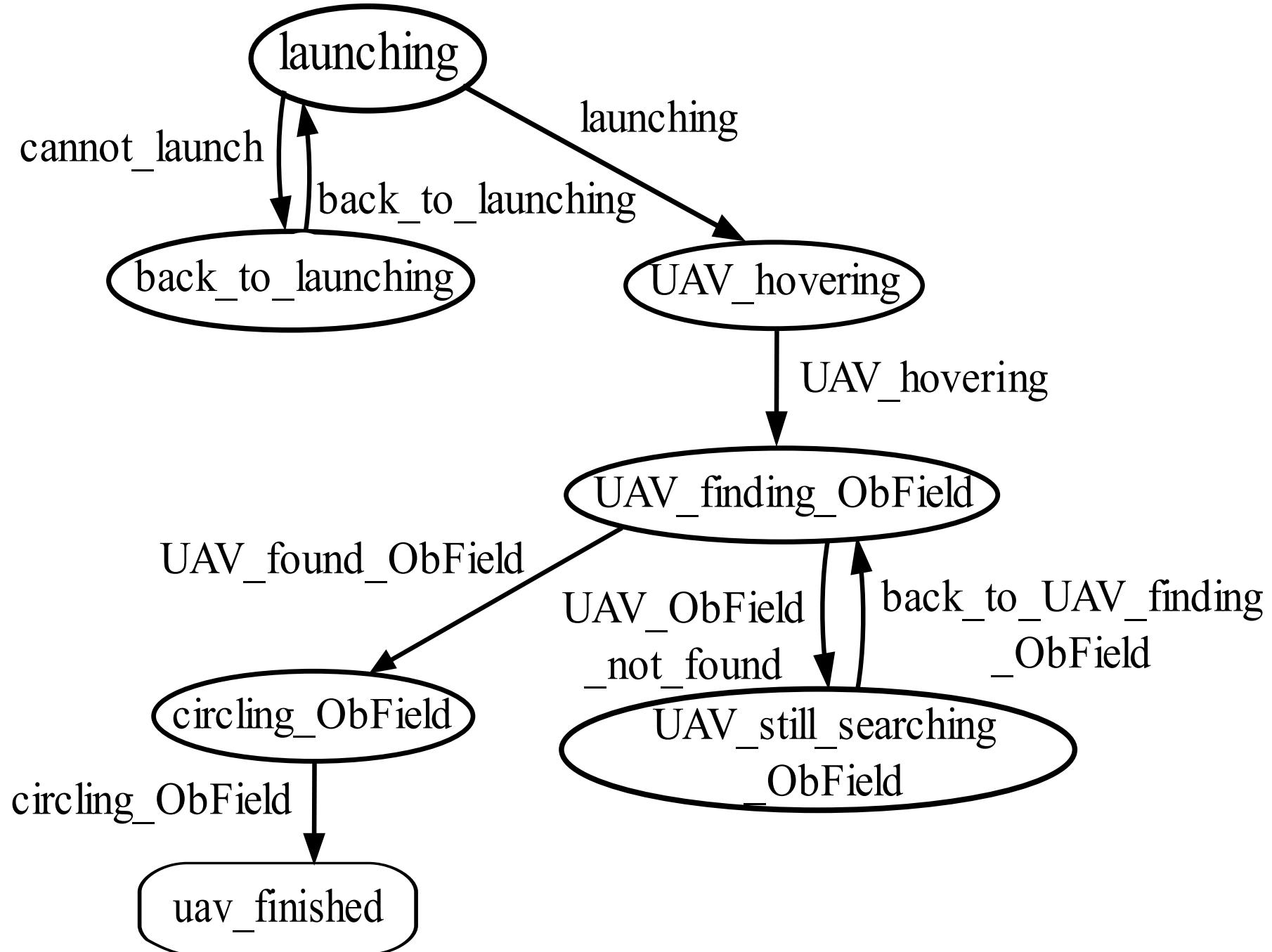
Horizontal Plane

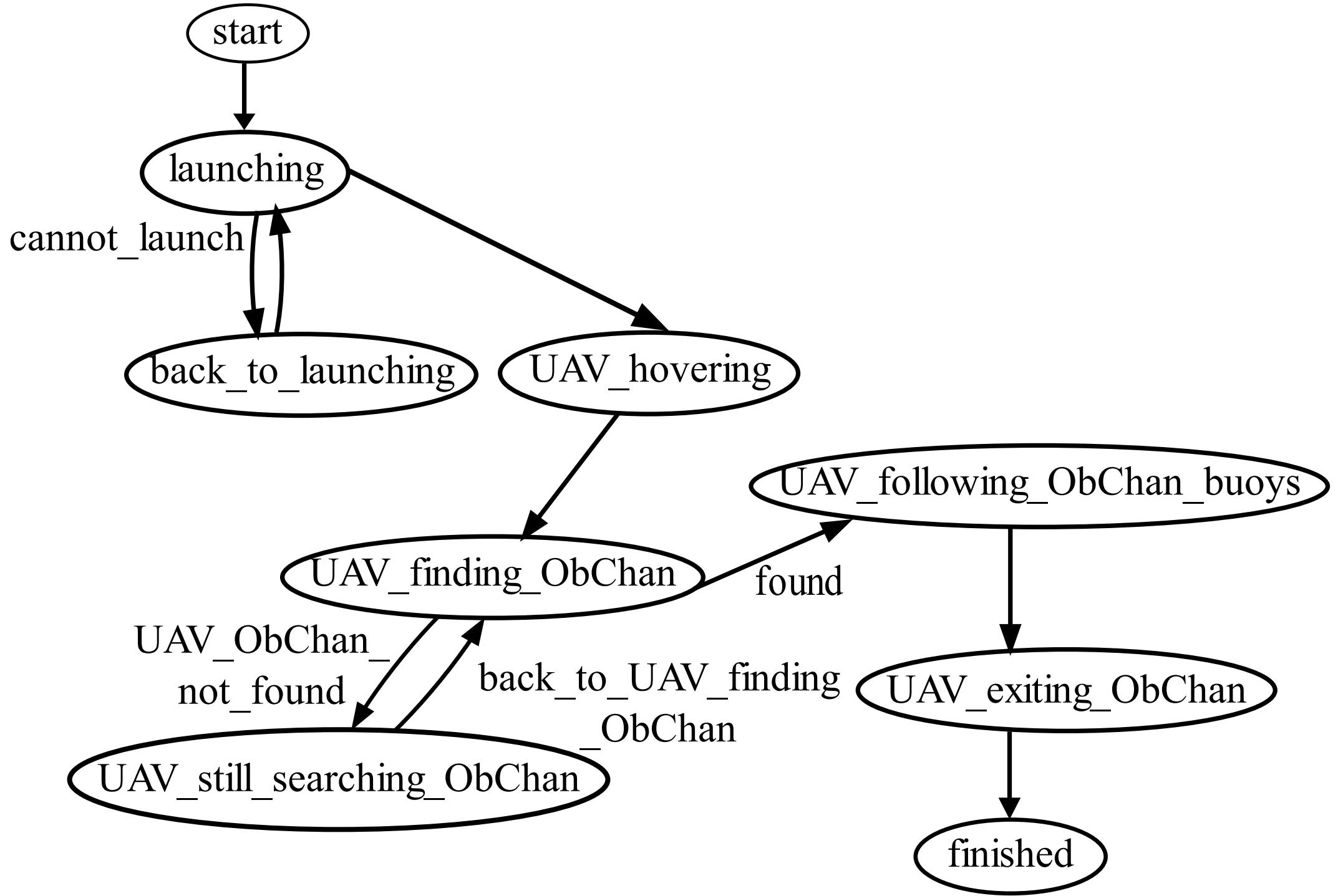


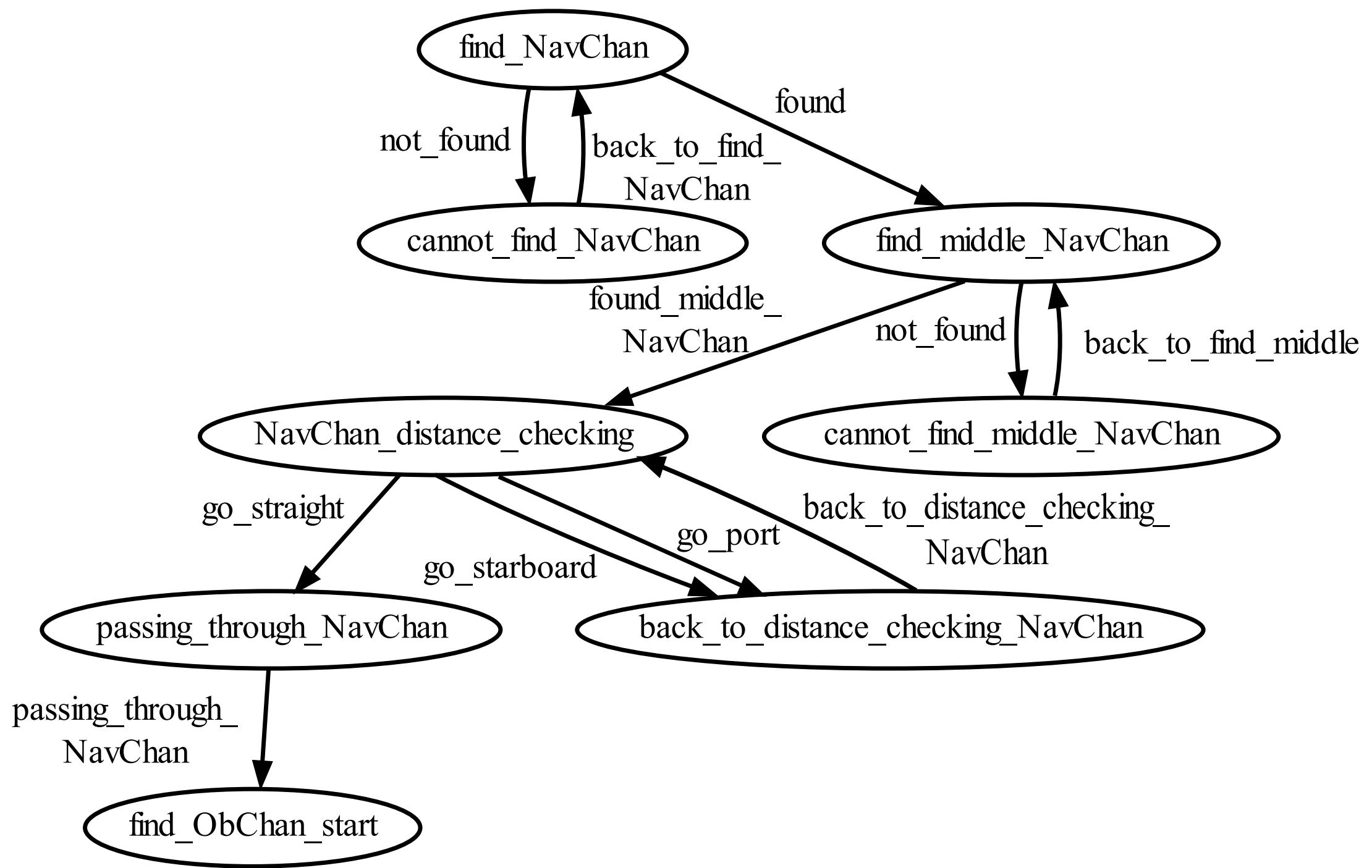


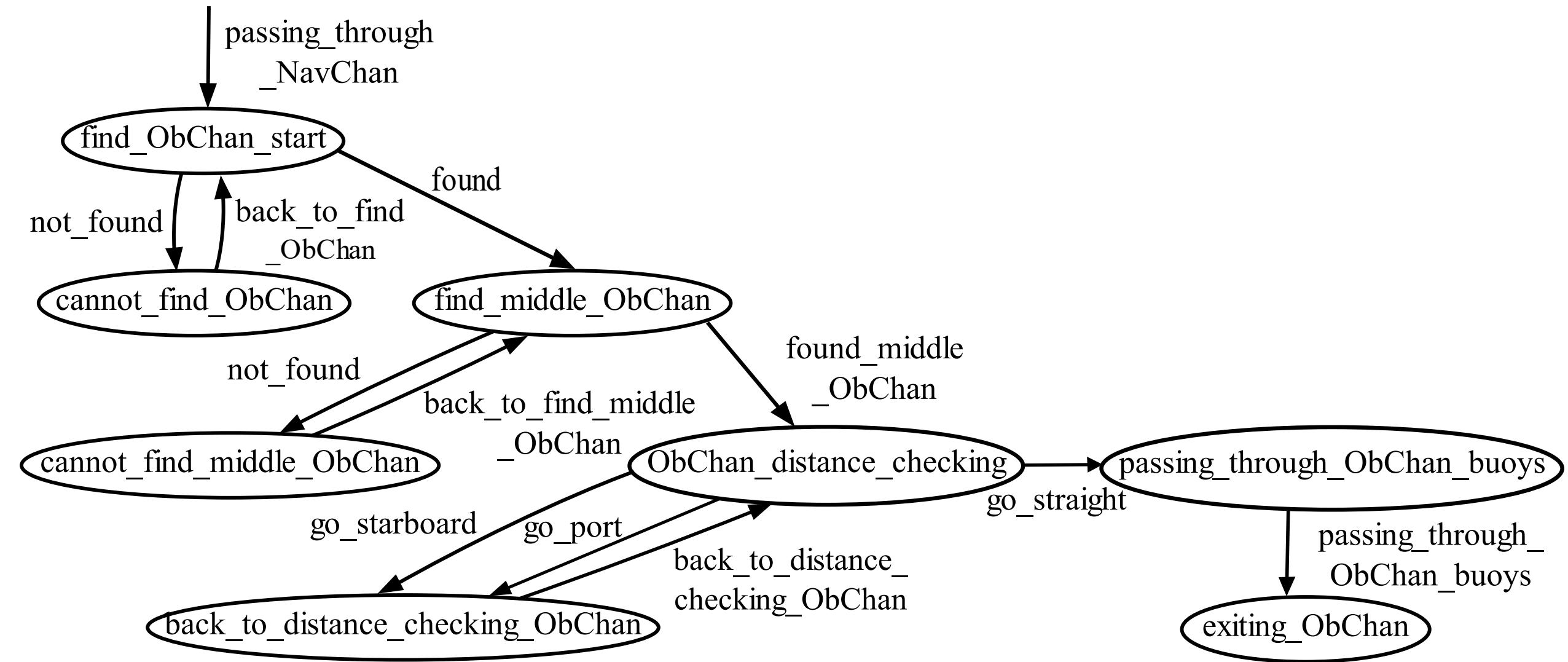
FOV Obstruction

FOV Obstruction

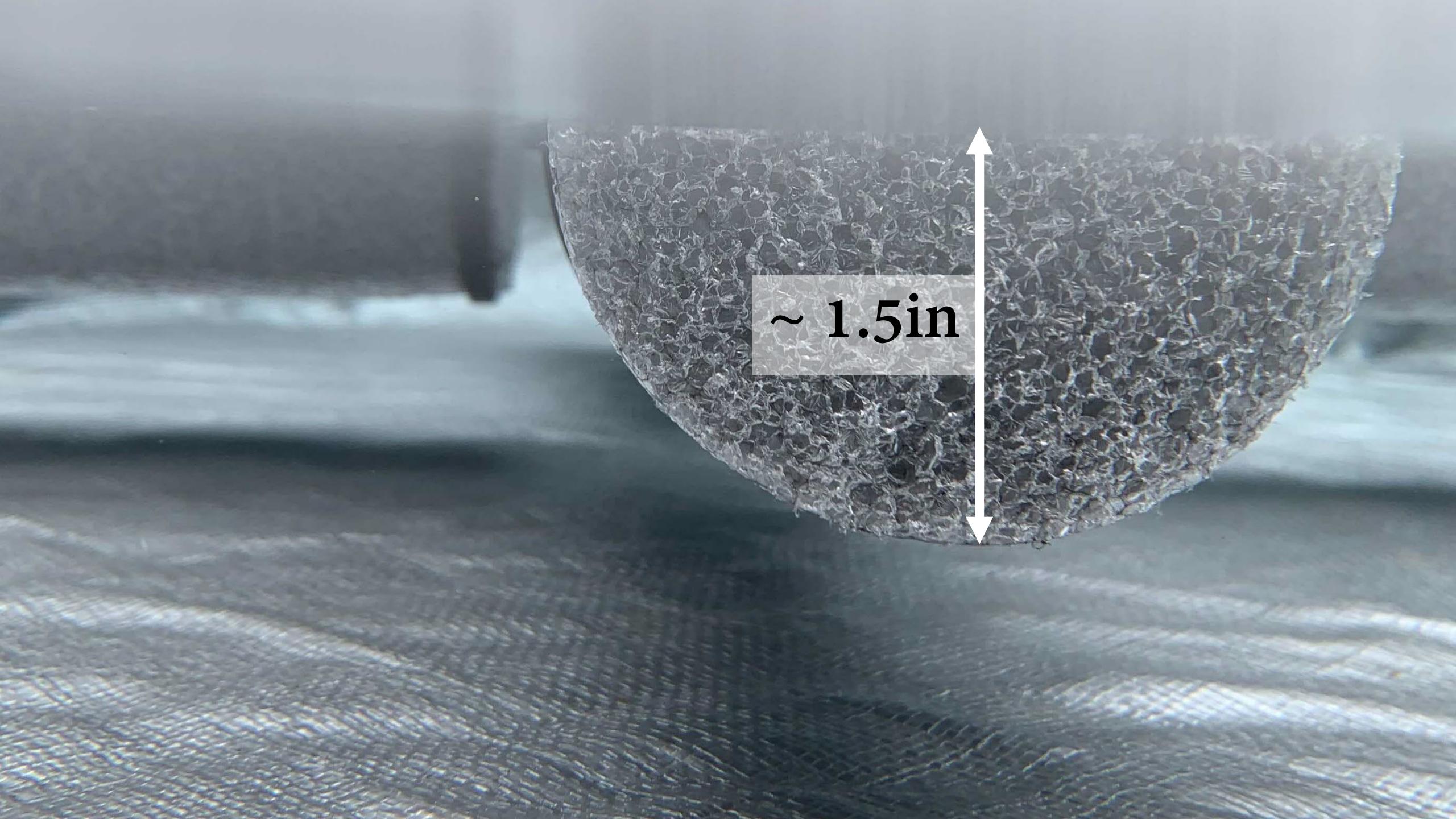












A close-up photograph of a dark-colored car's front fender. A significant dent or damage is visible on the upper edge of the fender. A vertical white arrow points upwards from the bottom of the dent to its peak, indicating the depth of the damage. A black rectangular overlay is positioned over the dent area, containing the text "≈ 1.5in".

≈ 1.5in

Dry
Hydrophilic
Material





Disconnected



17

~ 8.55
Minutes

Fly



Plan



Takeoff

250 ft

Survey-in Active

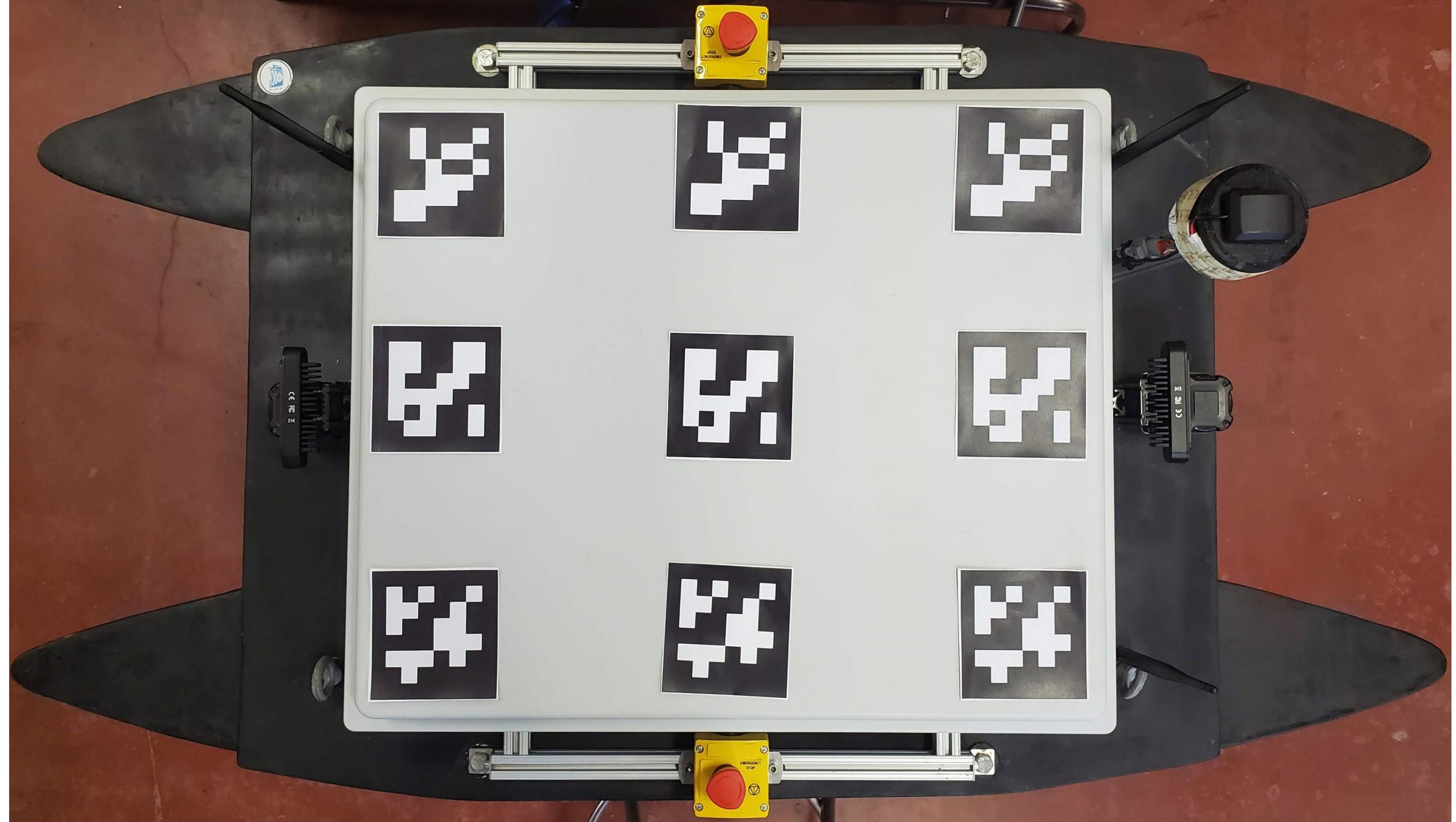
Duration:

535 s

Current Accuracy: 6.0 ft

Satellites:

17

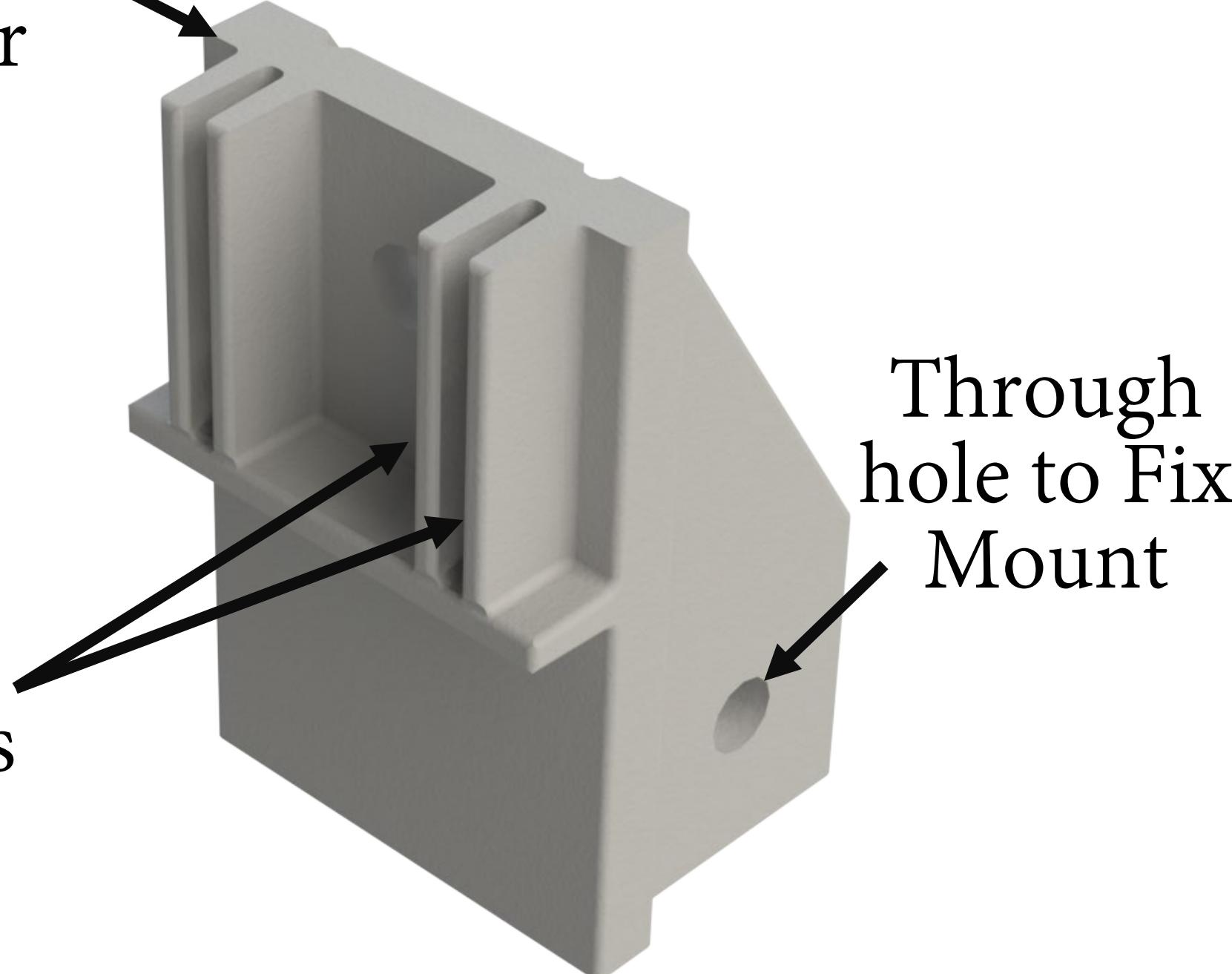




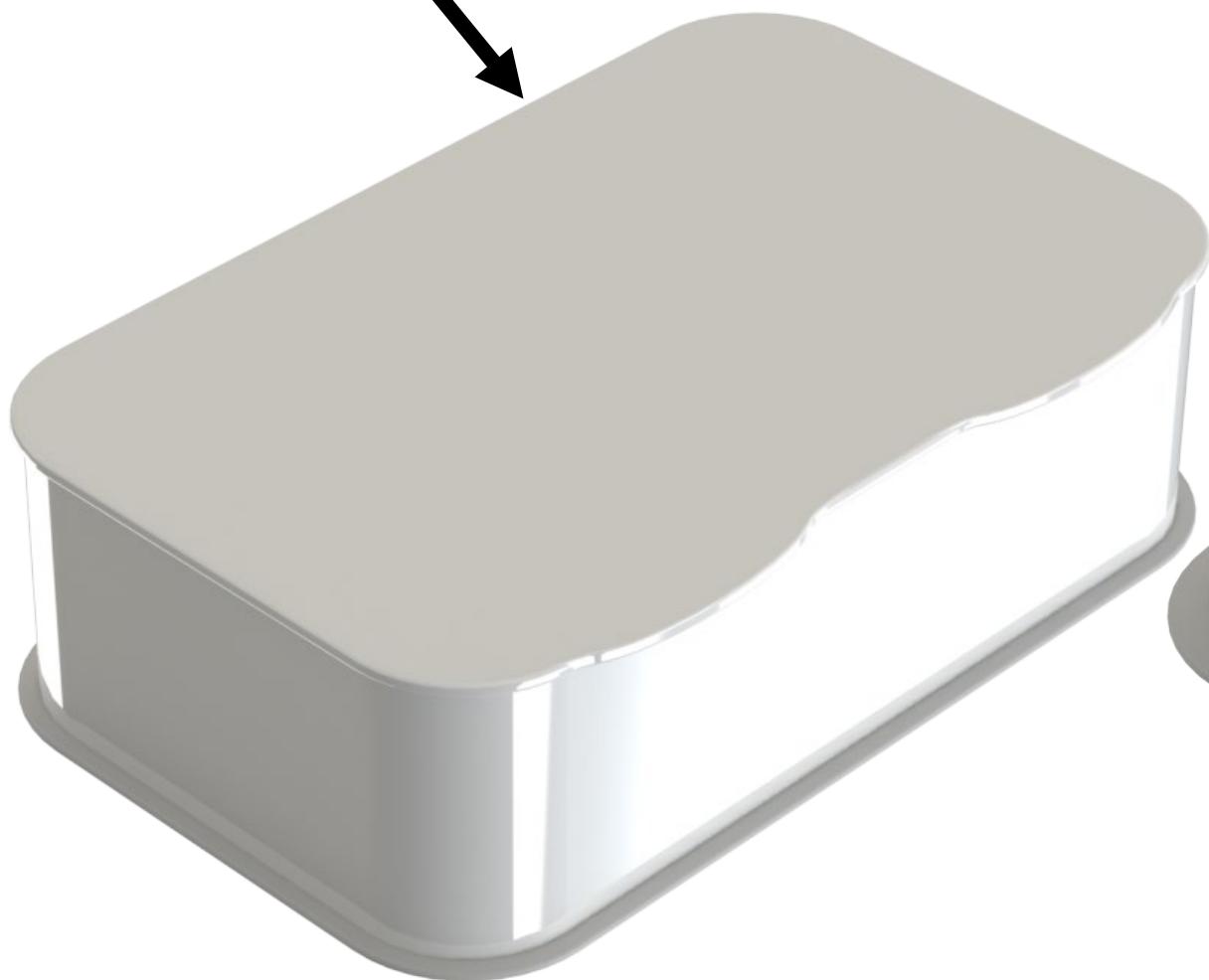




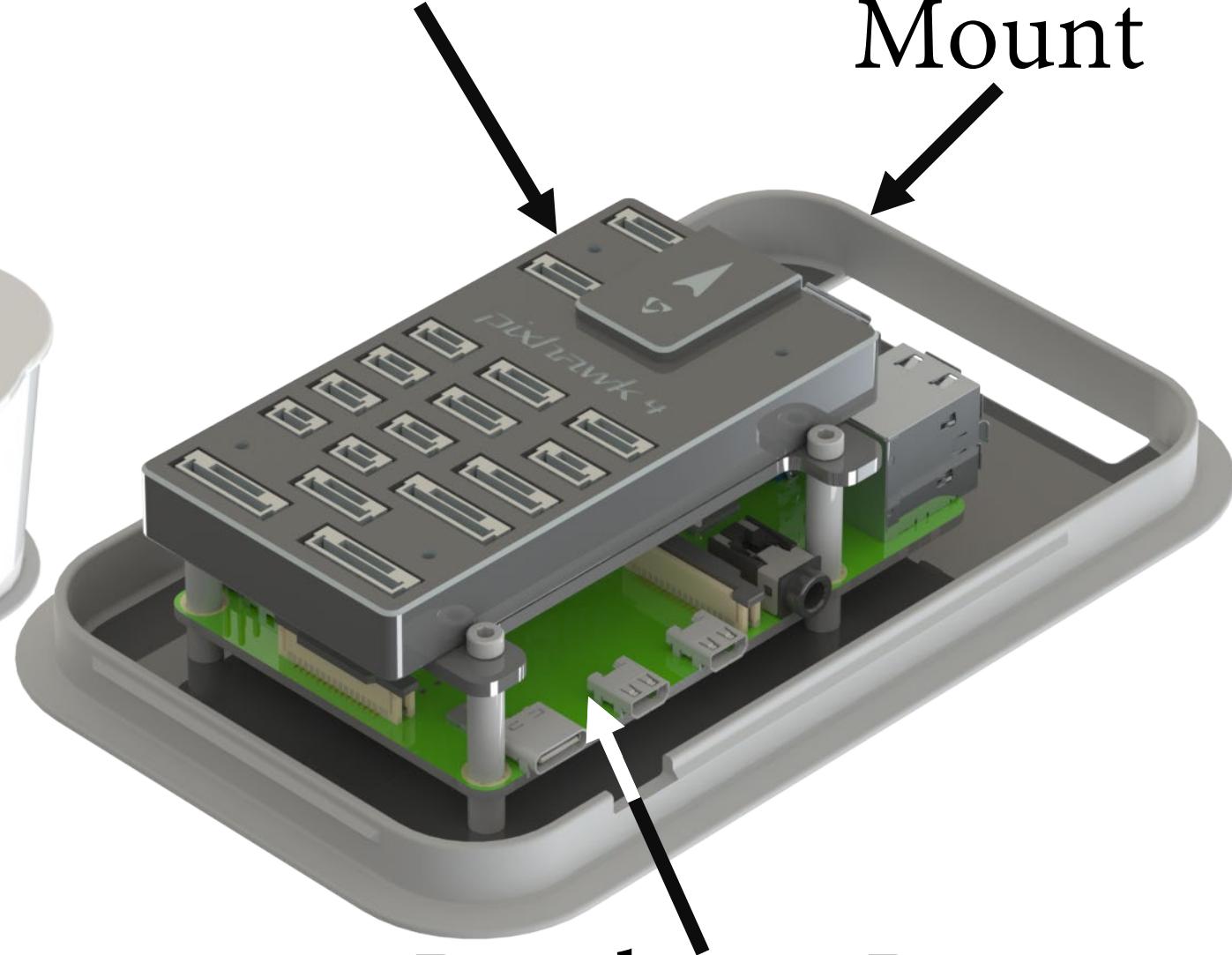
OAK-D Machine
Vision Sensor
ASV Mount



IP 34 Water Resistant
Electronics Enclosure



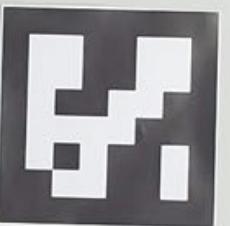
Pixhawk 4 FCU
Enclosure
Mount

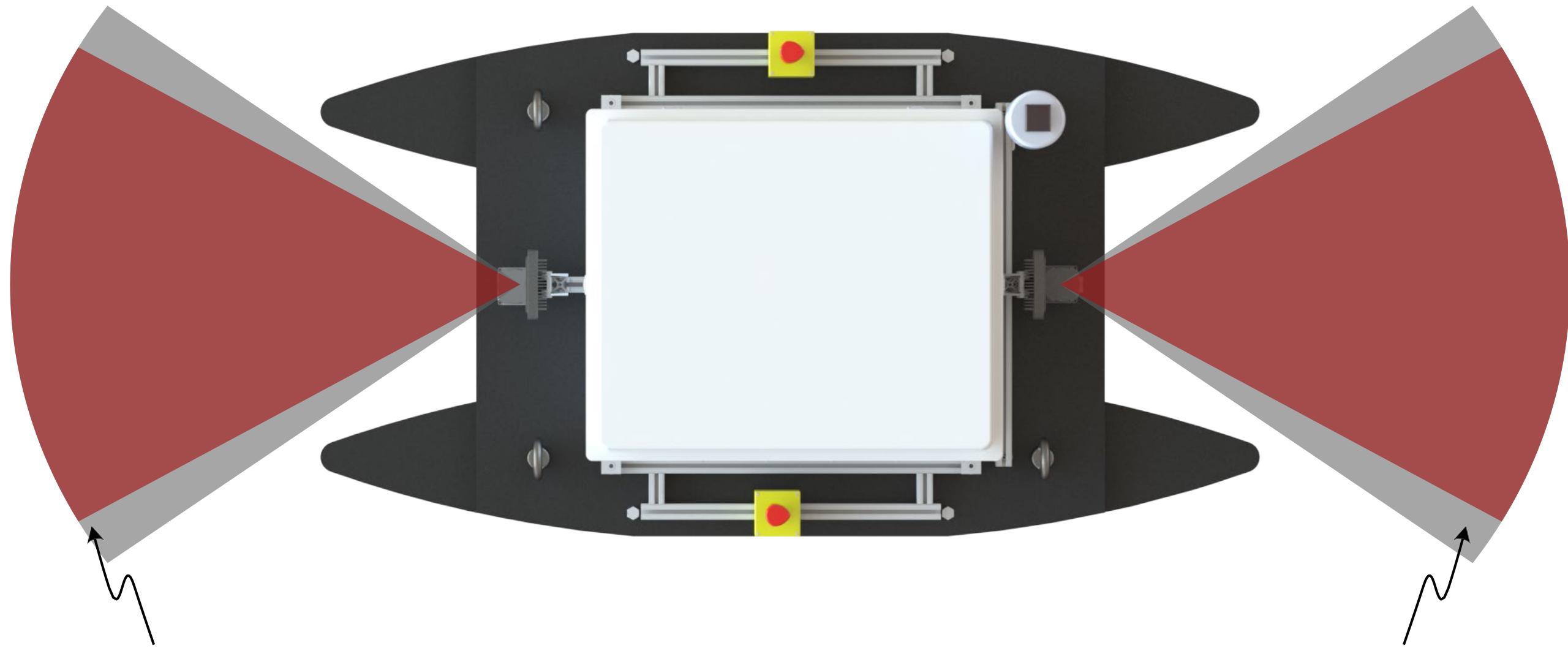


Raspberry Pi 4
Companion Computer

$\sim 230^\circ$

$\sim 230^\circ$





Oak-D Depth Field of View

Oak-D Depth Field of View



~ 1.5in

