



PROTECTING OUR COAST

Radar-Linked Marine Camera System

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Background

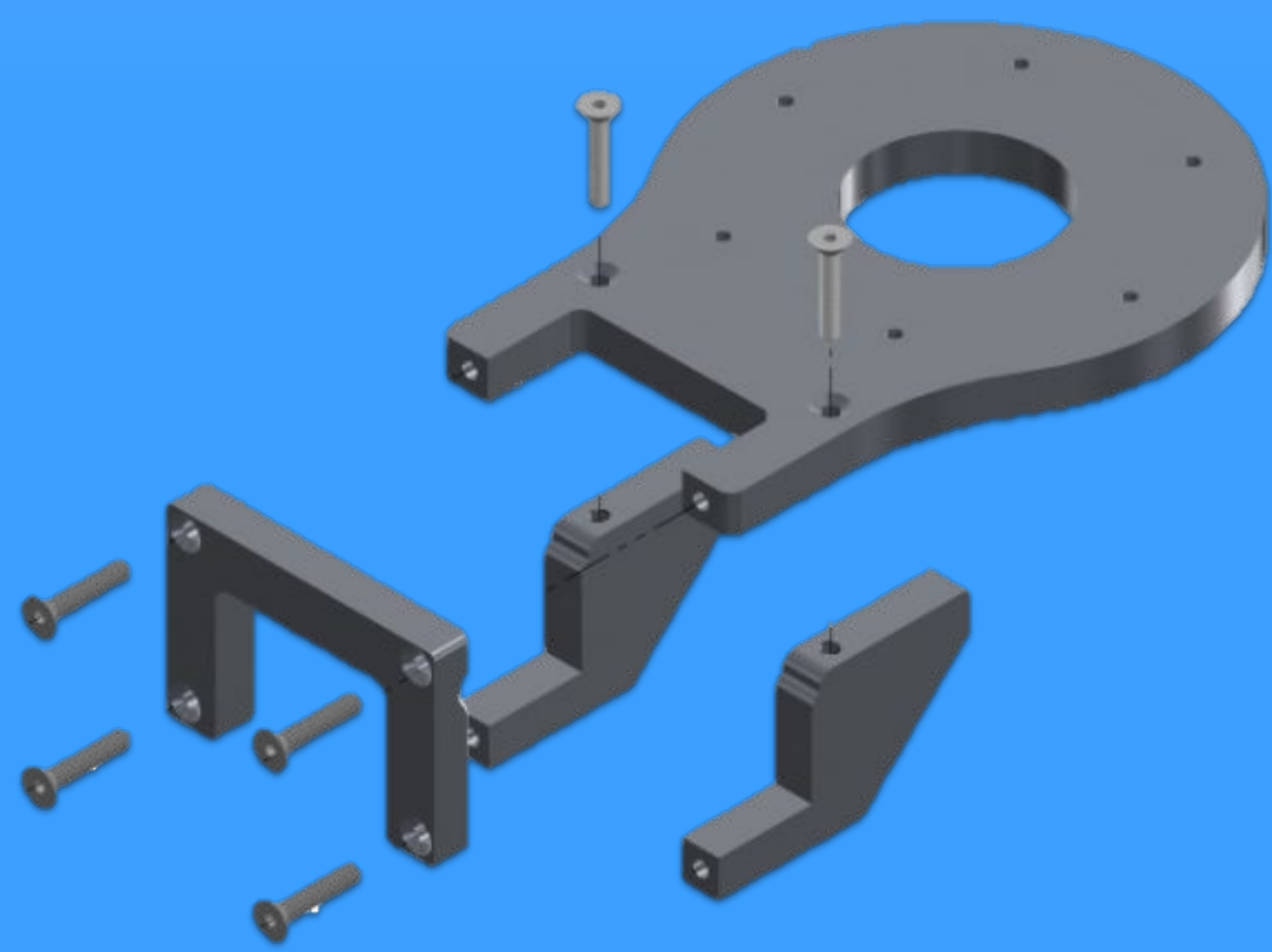
The marine sanctuaries off the coast of Santa Barbara and the Channel Islands are home to many diverse species. To protect these vital habitats, the SeaSight project links a FLIR M400XR infrared-and-visual camera to a Furuno radar system. This will allow 24/7 surveillance of the Campus Point marine protected area.

This system allows for the cataloguing and prevention of environmental issues such as speeding cargo ships, a leading cause for whale endangerment worldwide, as well as poaching and overfishing.

System Capabilities

- Infrared imaging allows for both night-time pictures and observation of endangered wildlife
- Pan-and-tilt capabilities of the M400XR allow for wide-angle coverage
- Predictive pointing algorithm more accurately tracks targets by accounting for the time delay due to camera rotation and target speed
- Materials and assembly methods protect the installation against wear and corrosion
- Tower and mount fully secure even against 100 mph wind (record wind speed is 84 mph)

Mount Assembly



SeaSight System



The M400XR installed on the radar tower at Coal Oil Point

Key Components

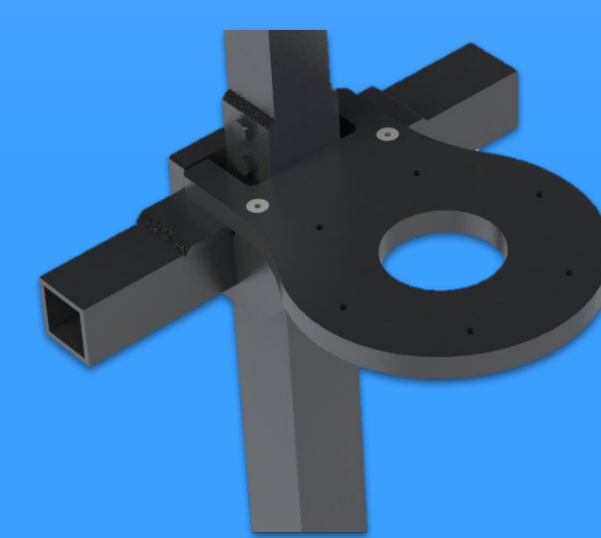
FLIR M400XR Dual Imaging Camera

- Active Tilt Stabilization
- Up to 30x Optical Zoom
- HD visual images
- 680 x 480 thermal images
- 360 degree pan and 180 degree tilt capabilities
- Heated windows to avoid lens fogging



Mount Design

- Corrosion resistant: Al 6061-T6 with 316 Stainless steel fasteners
- Designed to hold over 200 lbs. (M400XR weighs 45 lbs.)
- Centered on tower for stability and field of view

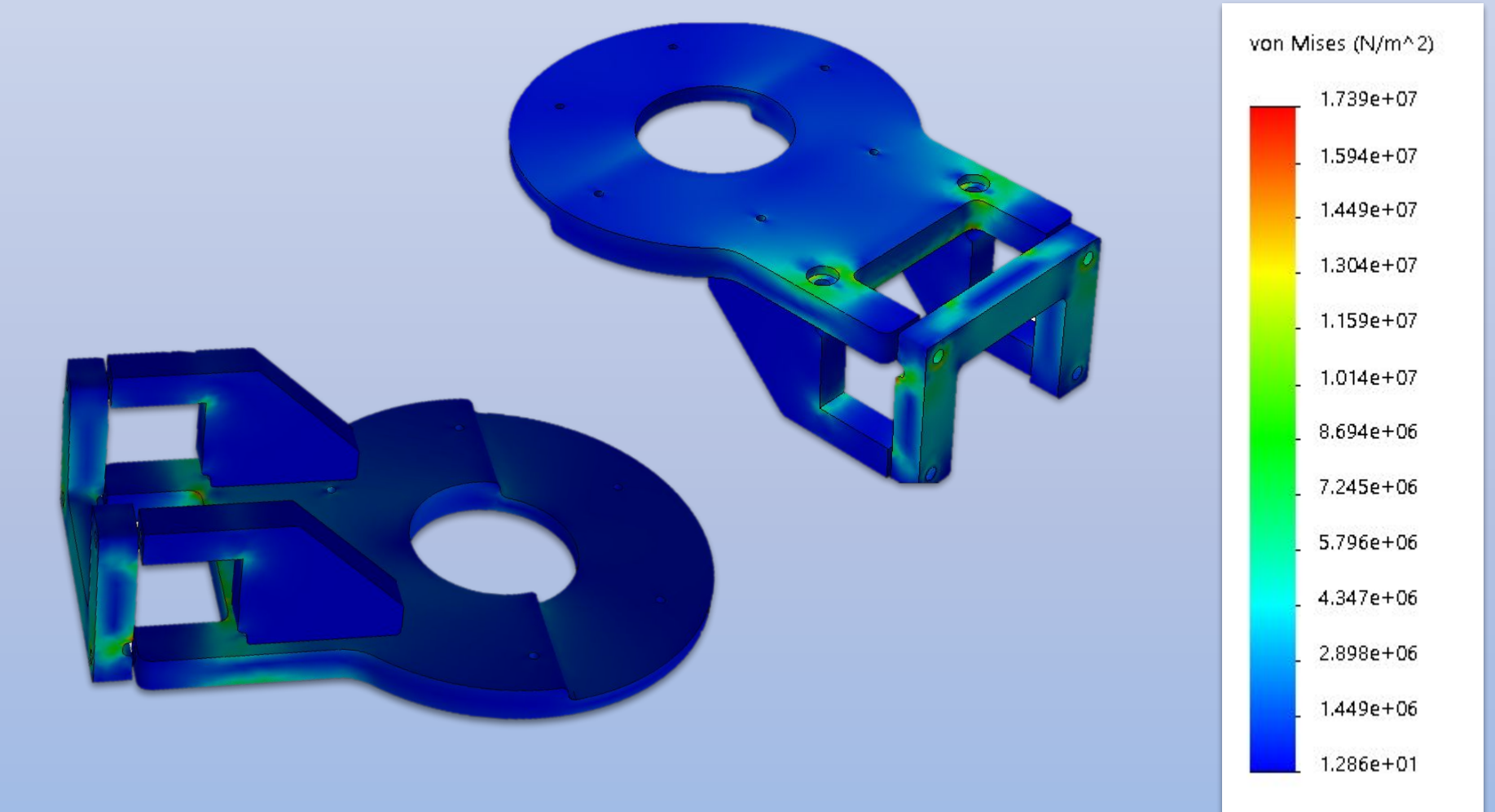


Security Camera

- Installed to prevent vandalism or theft

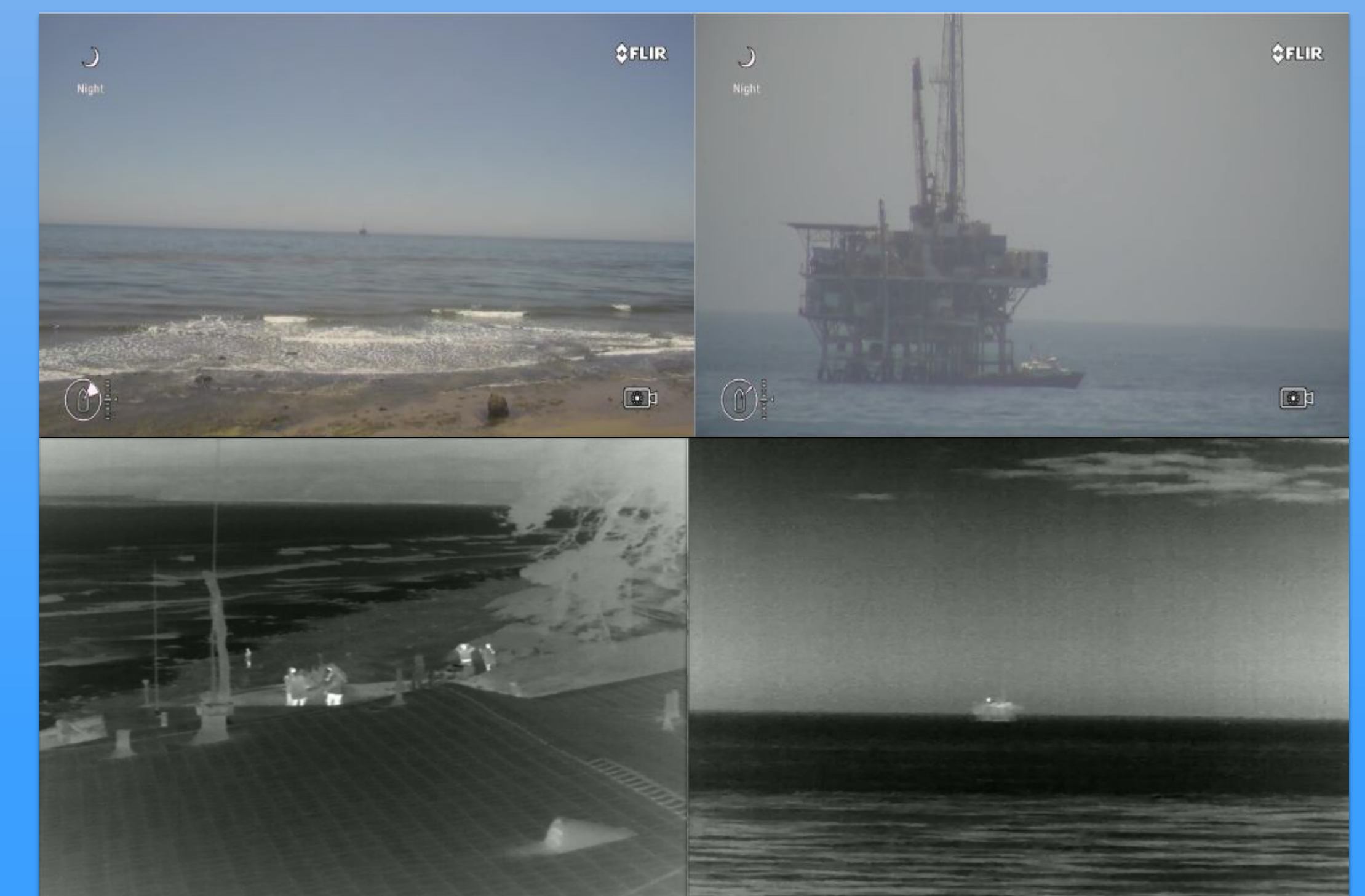


Load Simulations



- Solidworks FEA Simulations suggest a safety factor greater than 5 even in worst-case cyclic loading
- In static load, safety factors are greater than 15

Successful Image Capture



- Both visual (top) and infrared (bottom) cameras are successfully imaging
- Both systems are able to take clear pictures of Platform Holly, the oil rig 3.2 km off of coal oil point (top and bottom right)



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