SDSU College of Engineering

Fixed Power Payload Input/Output

FPP FORCE

Booz Allen

Project Overview

Description: Currently, the Booz Allen's Payload Input Output (PLIO) system serves as a universal translator for third-party sensors. Specifically, the FP PLIO is applied on Booz Allen Hamilton's unmanned surface vehicle (USV), the Man-Portable Tactical Autonomous System (MANTAS). . With the FP PLIO the operators are able to control and utilize the additional systems on the MANTAS, which give them a variety of capabilities such as; setting waypoints, intercept enemy submarines and mines, plant GPS trackers, and strap explosives to enemy ships. It enables the ability to deliver key information to critical military personnel while increasing the safety of personnel as the vehicle is unmanned.

Problem: The most significant issue with the current design of the FP PLIO is the lack of cyber security hardening which impacts the ability to ensure data is distributed to the key decision-makers effectively and efficiently. BAH also looks to utilize the PLIO on a variety of different platforms other than the MANTAS.

Need: Reduce size, weight, power constraints, cost of unit, and redunancy of the original design.

Meet the Team

Riley Stewart
Project Manager

Sam Lucas
Safety and Integration Lead

Sam Kneale
ME Design Lead

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ME Systems Engineer

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ECE Team Lead

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ECE Systems Engineer

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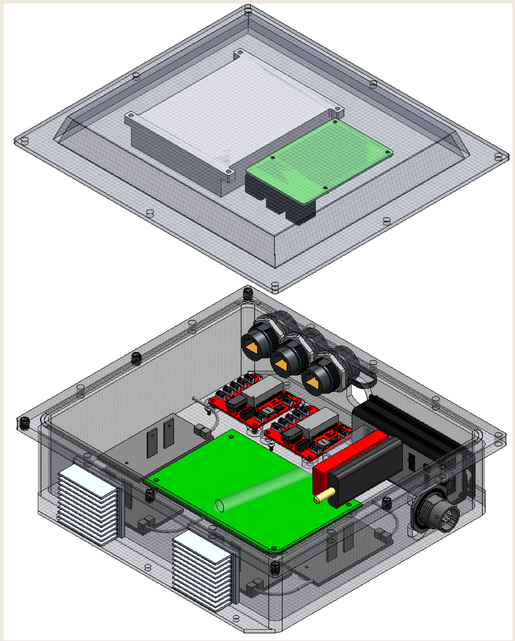
Our Sponsors

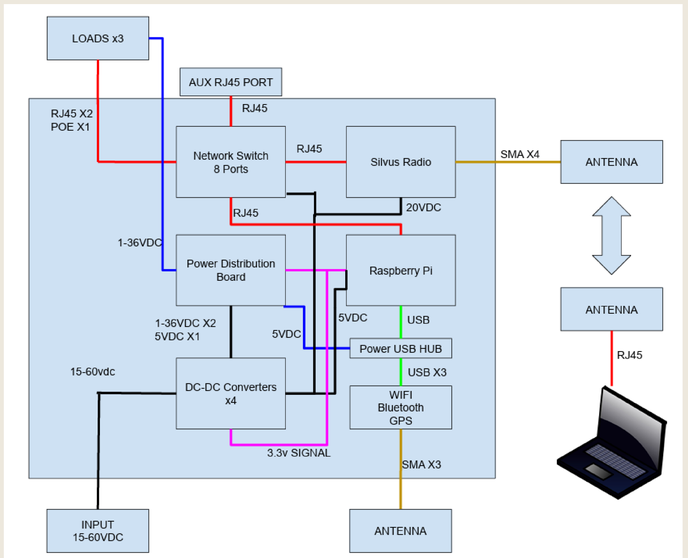
Booz Allen Hamilton: A global firm of approximately 33,800 diverse, passionate, and exceptional people driven to excel, do right and realize positive change in everything they do.

Mission Statement: To empower people to change the world.
Our founder, Edwin Booz said it best: "Start with character… and fear not the future." We bring a ferocious integrity to not only train our clients to tackle the problems they face today, but to help them change the status quo for tomorrow.

The CAD Design

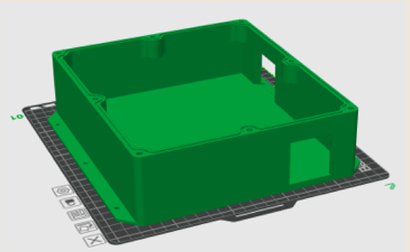


System Level Diagram

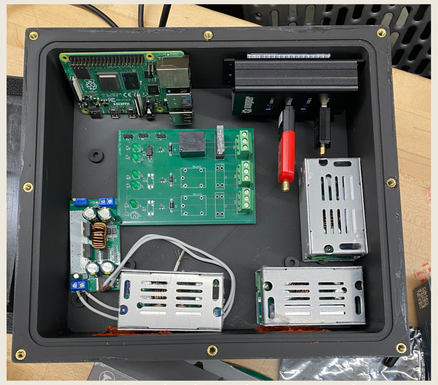


Manufacturing & Assembly

Heat Sinks Milling Process



CAD Model on 3D Printing Software



Mechanical Enclosure and Electrical Component Integration

Testing and Evaluation

Gasket and Waterproof Testing

PCB and Connections Tests

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