

Warfighter Electronic Bridge

Global Control System Accessories

Project Description:

Teal Drones, a subsidiary of RedCat holdings, are a leading provider of short-range reconnaissance drones for the U.S. Department of Defense, Homeland Security Agencies, and NATO. They are projecting a new drone system launch in Fall 2024. Our team is collaborating with Teal Drones to further develop their new product called the Warfighter Electronic Bridge (WEB). This system is optimized for military and public safety operations, helping to further technological advances in the robust tactical ecosystem that is the defense industry. We seek to augment the existing WEB Global Control System (GCS) to make it more efficient for use in the field and intense combat scenarios.

Design Options/Possible Solutions:

Secondary Display Unit

- Attached either on top or bottom of controller
- Removable screen and modular for different sizes
- Hinge to close the screen / protective cover

Sunshade / Protective Cover

- Anti-glare films (matte)
- Stealth shields on side of both primary and secondary screens

Directional Antenna

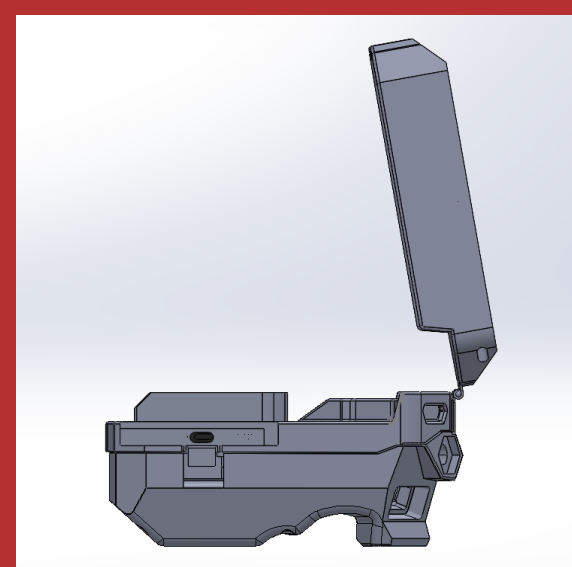
- Patch Directional Antenna
 - Rotation of antenna: Servo Motor and Gyroscope / GPS integration
 - MIMO (Multiple Input Multiple Output) Antenna System

Project Importance:

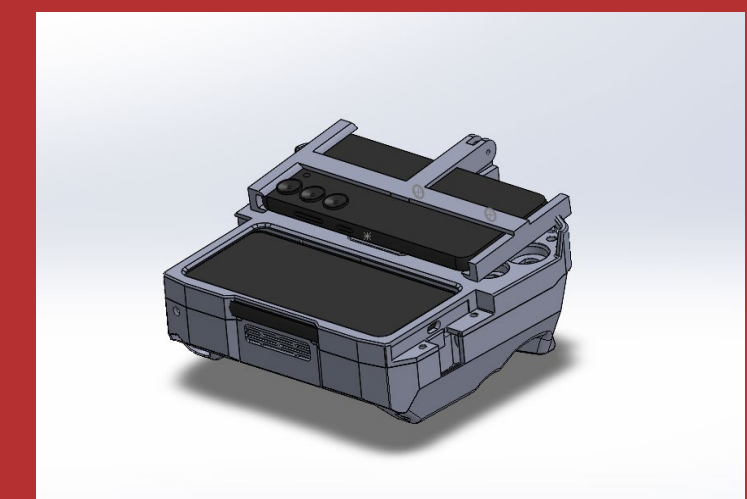
This project is critical to the success and safety of United States military operations. The WEB provides situational awareness and actionable intelligence to warfighters in combat, directly increasing mission efficiency and survivability. Our goal with these three accessories is to not only reduce cognitive load on the user by spreading out the required information onto two screens, but also increase the effective range and provide better coverage from detection in combat scenarios.

Early Design Concept(s):

Design 1: Full Cover



Design 2: Top Mounted

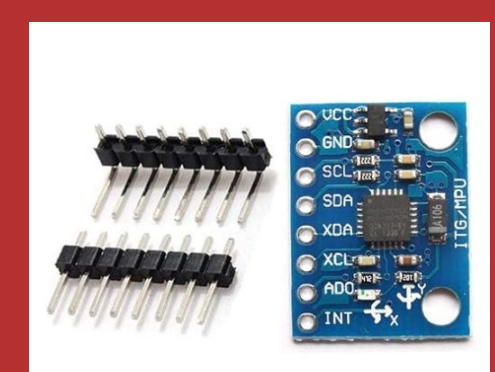


Design 3: Bottom Mounted



Directional Antenna

- Patch Antennas



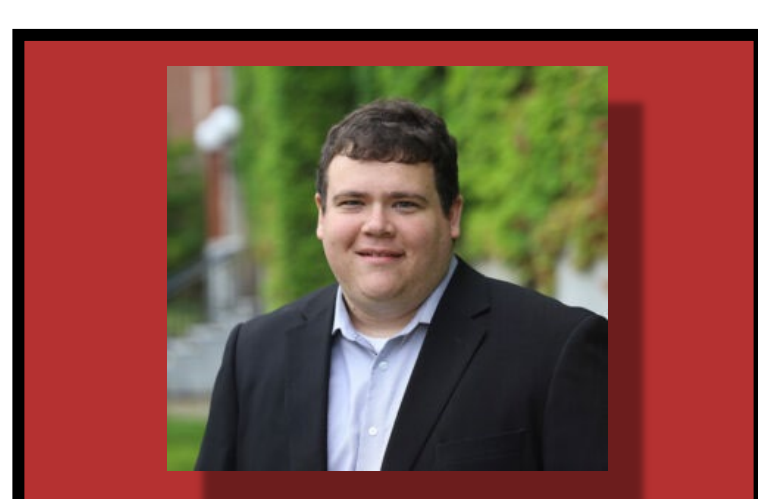
- Gyroscope Sensor



- Servo Motor

Semester Deliverables:

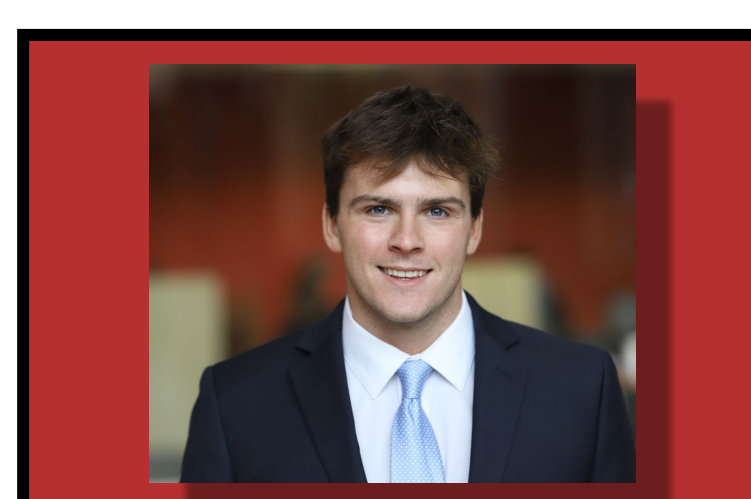
1. CAD models and fully defined technical drawings of selected design(s)
2. Stress and thermal related finite element analysis of selected design(s)
3. Prototyping with 3-D prints and added weights
4. Risk Memo
5. Capstone Final Report



Dr. Matthew Erdman



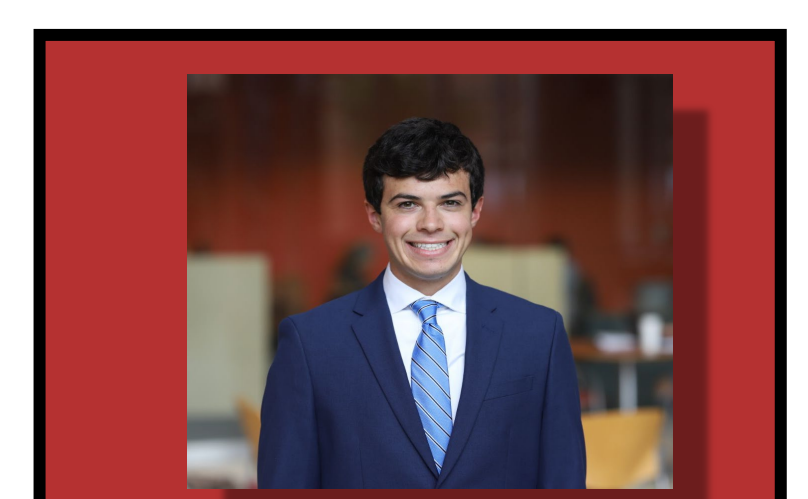
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