

Portable Military Surveillance Tower

Scope

Mechanical Subsystems

- Mechanical design and analysis of current structure to decrease weight.
- Improve on current system deployment time and reliability.

Electrical Subsystems

- Improve reliability of components.
- Decrease weight and cost of system.
- Increase battery back up time and propose alternative energy solutions.

Logistics

- Develop a product lifecycle plan from initial shipping to end of life.

Engineering Competencies Utilized

- Mechanical Design/CAD Modeling
- Structural Analysis
- Electrical Design
- Power Distribution and System Design
- Product Lifecycle Planning

Results

- Mechanical design trade studies led to numerous concepts which would increase design safety factor by increasing strength, stiffness and reducing weight. Also demonstrated concept which would decrease deployment time and system downtime between repairs and/or maintenance from half a day to half an hour.
- New design led to a reduction in cost of electrical system by 50.4%, reduction in electronic packaging by 29.2%, and increase in battery back up time of 588%.



RAID towers provide persistent surveillance capability using infrared sensors elevated on a stationary platform.