PEAK Local Situational Awareness (LSA) System for Department of Defense

Overview
PEAK (Pre-positioned Expeditionary Assistance Kits) is a self-contained system to be utilized for the first 72 hours following a man-made or natural disaster. Its main focus is to provide power, clean water, a communications link, and information about the surrounding area. The goal of the Local Situational Awareness (LSA) system is to gather data from the affected area and compile it on a map so the first-response teams can prioritize the needs of the affected region.

Objectives
The objectives were as follows:
1. Integrate with other PEAK systems
2. Deliver information on threats, local populace, environment, etc.
3. Compile information to a platform to view images
4. Leverage existing, off-the-shelf technology

Approach
- Through bi-weekly phone conferences with our sponsor we were able to obtain and continually work through requirements.
- A Systems Requirements Document was used to lay out all requirements and map them to categories.
- The creation of a system architecture allowed the team to plan a potential framework and visualize interfaces.
- Feasibility matrices were created for analyzing software platforms and the hand-held devices used for data collection.
- A constant need to be in contact with the other three teams working on the PEAK system proved invaluable to ensure proper integration.
- A risk mitigation plan was mapped out to avoid potential issues throughout the project.
- A Preliminary Design Report and Presentation allowed us to narrow our ideas into a cohesive project.
- A Verification and Validation Test Plan was mapped out and utilized to ensure all requirements were met by the components the team chose and confirm that we had created a working prototype.
- The budget was constantly maintained to guarantee the team stayed within the $1000 allotted.

Outcomes
The team was able to utilize off-the-shelf equipment and create a working prototype that has the ability to retrieve text, audio, still photos and videos with a hand-held device and appropriately map them with their world coordinate. Although the range and number of devices were under-scoped due to both budget and time constraints, there exists the possibility of expanding the network to encompass a wider area and for the system to be utilized by more users.