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**EE797 Project Title:**

Development of a mobile network access device for use with the Department of Homeland Security’s advanced container security device system.

**Goal:**

An advanced container security device (ACSD) is wirelessly enabled monitoring equipment whose primary purpose is to detect unauthorized access to cargo containers [1], and in order to provide system wide monitoring, the status of these containers is to be relayed to a secure data consolidation point (DCP) server. The objective of this project is the design and implementation of a network access device (NAD) that is compatible with the Department of Homeland Security (DHS) ACSD program. The role of this NAD will be to provide a secure bridge between the DCP and a multitude of ACSDs by enabling the user to wirelessly acquire and transport the status messages and event logs from the container security devices [2].

The scope of this project will be to design the overall handheld NAD system architecture and implement it using a phone running the Android operating system. As necessary, the NAD will be able to communicate with the DCP over a WiFi/Radio network to obtain the encryption keys needed to wirelessly issue commands to the cargo security devices at some later point. The NAD will store the received information locally, and once network access to the DCP is re-established it will securely transfer the collected status information.

**Time table:**

Summer 2011:

* Study the necessary security protocols utilized to exchange information with the ACSD devices, and the data consolidation point server
* Develop a detailed system architecture and operation diagram for the network access device
* Begin software development of the NAD system and documentation
* Perform testing on communications compatibility with other components of the systems.
* Effort level: 20 Hours of work per week.

Fall 2011:

* Complete software development of NAD and its documentation
* Write thesis
* Effort level: 20 Hours of work per week.

References:

[1] Security Device (CSD/ACSD) Communications Interface Control Document (ICD) Security Devices-To-Network Access Devices (NADs); US Department of Homeland Security, Science and Technology Directorate.

[2] Cargo Security Network Access Device (NAD) Requirements; US Department of Homeland Security, Science and Technology Directorate.

[3] Data Consolidation Point (DCP)-to-Network Access Device (NAD) Interface Control Document (ICD); US Department of Homeland Security, Science and Technology Directorate.