Motivation

The two primary realtors of truck security are LoJack systems and GPS system and Cell Phone Triangulation systems. LoJack is overpriced for today’s market environment, and the GPS/Cell Phone systems inside the shipping container only returned about 12% and 20% of the desired level of information. With our system we will have a robust and ideally redundant system that will be cost effective enough to employ on a large scale.

Development Environment

**Hardware:**
- GM862 Cellular Quad Band Module With GPS
- GM862 Evaluation Board – RS232
- PBMCUSLK Prototyping Board with Microcontroller Interface
- MC9S12C32 Freescale Microcontroller
- Antennae (Cell and GPS)

**Software:**
- Codewarrior

**Protocols:**
- GPS
- SMS
- RS232 Serial

**Power:**
- Sleep Mode to Conserve Power
- SMS Based Polling Updates

**Reliability:**
- Control of Polling Time
- Signals Amplified by Antennae

**Concurrency:**
- Able to deal with and send Cell and GPS data at the same Time.

**Caching:**
- Cache Current Known Position
- Data Preserved to Ensure That Last Known Location is always Able to be Obtained

Results

Initial Tests:
- Conducted in a Car Trip to New York and Back.
- Showed Reliable Data even Encased in Shielding

Robust Tests:
- Under Shielding Comparable to a Trucks
- 3% Variance of Outliers Deviating from Path
- 6 Average Satellites Found