CS Masters' Thesis Defense

Title: *Safety Notification Broadcast System*
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Abstract:

The Safety Notification Broadcast System is a network design that enables broadcast of safety/emergency notifications to wireless mobile devices such as cellular phones. The widespread penetration of wireless coverage, even reaching into subways, underscores the significance of such a system. An alert-aggregator or emergency operations center authenticates alerts and passes them on to participating wireless providers, who in turn distribute the alerts to their customers via broadcast messages. The alerts are focused on geographic areas under threat, and are processed in real time. The ultimate goal of the system is to ensure that real-time safety notification messages reach people in the geographic area under threat, and the best solution to achieve this would be through their cellular phones. This thesis concentrates on the design and development of a network protocol design and a supporting Android application that supports such a Safety Notification Broadcast System.

Not all cellular phones support an emergency broadcast message built over a Common Alerting Protocol (CAP) - a classification of the broader Integrated Public Alert and Warning System (IPAWS), or the Geo-Targeted Alerting System (GTAS). Mobile communication messages have several parameters that help the device to identify its purpose and origins. Depending on various parameters such as message type, priority, service category, etc., messages may be recognized as a broadcast message. Such a safety notification or alert message is embedded inside the broadcast message according to standard Common Alert Protocol. Our android application developed could be installed on any android device with very little or no configuration change and the mobile device shall accept this high priority message, decode it following the protocol and immediately notify the user about the received emergency message with a special audio-sensatory pattern.