

PS COMMITTEE #1
July 17, 2014

MEMORANDUM

July 15, 2014

TO: Public Safety Committee

FROM: Susan J. Farag, Legislative Analyst 

SUBJECT: Briefing – Chief Innovation Officer – Current Public Safety Projects

Today, the Committee will receive a briefing from the Chief Innovation Officer, Dan Hoffman, about current public safety projects. Mr. Hoffman will present information on SCALE Project, which is part of the SmartAmerica Challenge.

The SCALE project (overview on © 1) uses advanced sensor and receiving technology to create an automated safety alert system that can protect vulnerable populations. This system can detect different environmental factors like smoke, heat, light, carbon monoxide, power, and other elements that may indicates safety issues. This network can be extended to individuals regardless of income level and provide an additional layer of public safety alert in addition to, or instead of, the traditional phone call. The alert system can be configured to alert a caretaker and/or emergency dispatchers.

Discussion Issues:

1. The Committee may wish to discuss the nature of the partnership among public and private sector entities that developed the concept.
2. How does the alert system interact with the 911 emergency communications system?
3. What are future plans for the project?

((((SCALE: Safe Community Alert Network)))

A Project in the SmartAmerica Challenge

Overview

One of the primary goals of any local government is to ensure a safe environment for residents. We even take special steps to protect our vulnerable residents whether they are elderly, young, disabled, or just simply need extra help. To do this we invest in first responders that come to the aid of our residents in need. These calls for assistance have historically been just that, manually initiated phone calls. In the past decade the rise of wifi-enabled sensors and broadband have replaced manual alerts with automated calls to dispatchers. This is an often overlooked chasm in the digital divide. Until now this extra level of safety was only available to those who were able to afford it. It would not be feasible for the government to provide connected safety alerts in the homes of individual residents without unsustainable cost, until now.

The SCALE network demonstrated our ability to extend a connected safe home to everyone at a low incremental cost. Using advanced sensor and receiving technology, an elderly, home-bound resident would no longer need to fear a fall. Families would no longer fall victim to a smoke detector with a dead battery. Using a variety of connection methods, including ultra narrow band and mesh networks, SCALE showed that the public sector can create an automated safety alert and community awareness network that protects vulnerable populations. This network does not rely on the resident's ability to pay for broadband or even require them to have a land line. Sensors can be deployed and connected to first responders thus creating a safer environment for residents and economic opportunity for businesses that might build, deploy, and maintain these devices.

How it Works

Working with the Montgomery Housing Partnership, an affordable housing developer in Montgomery County, Maryland, we deployed a variety of connected sensors that detected different environmental factors. These factors included but are not limited to: smoke, heat, light, carbon monoxide, humidity, power, acoustics, and even if a resident falls. These sensors will connect to gateways in a manner that does not rely on private broadband or a manual intervention by the resident. Most sensors will connect through either an ultra narrow band frequency or a mesh network. In the case of the ultra narrow band connected sensors, the sensors relay a signal to an antenna that could be located up to 8-10 miles away. This low power frequency also has a very long battery life, often lasting for many years. For sensors requiring more bandwidth, a mesh network will also be deployed. These sensors will access a gateway in the building or use other sensors as a relay to the nearest gateway. So a total of two cyber-physical systems will be deployed to demonstrate this concept.

When a signal is sent from a sensor the data is quickly transmitted to a cloud service. In this cloud the data is then paired up with other data that helps identify the individual in distress and their location. The victim is alerted via an automated message to a mobile device. If there is no response or the resident confirms the emergency, an alert is sent to a caretaker and/or emergency dispatchers. SCALE also contributes to resiliency, as the sensors provide a multi-function, ubiquitous sensing capability and infrastructure that could result in many uses other than an emergency.

The Team

The SCALE team consists of public and private sector organizations, including start-ups and non-profits. The team currently consists of IBM, SigFox, MIT, UC-Irvine, Senseware, Twilio, World Sensing, Montgomery Housing Partnerships, and Montgomery County, MD.