DHS Science and Technology Directorate
EMERGE Accelerator Program

EMERGE Accelerator Program for Wearable Technology for First Responders

The Department of Homeland Security (DHS) Science and Technology Directorate (S&T) is looking for innovative technology and opportunities to reach more entrepreneurs. The *EMERGE* Accelerator program is one part of S&T's overall strategy to continue to further federal government research and development.

Figure 1. EMERGE Demo Day Flyer

In partnership with the United States Air Force Academy, DHS Center of Innovation and the Center for Innovative Technology (CIT), S&T launched the *EMERGE* Accelerator program for Wearable Technology for First Responders in March 2015. *EMERGE* was a pilot and designed for entrepreneurs who have innovative ideas that address the unique needs of the Homeland Security community.

Helping innovators develop, launch and take their concepts to the next level

EMERGE's focus was on commercial wearable technology that could be adapted for first responder operations, including body-worn electronics, advanced sensors, protective equipment and materials and embedded voice and data communications systems. *EMERGE* was designed to help innovators (e.g., individuals, startups and second-stage companies) develop, launch and take their concepts to the next level.

Accelerating Technology Development

After issuing a nationwide call for applicants, the program selected around twenty startups and second-stage companies from roughly a hundred candidates. *EMERGE* participants experienced first-rate education in business development and were connected with mentors from the best minds in the business world to produce next generation innovative wearable technology. *EMERGE's* goal was to accelerate the technology development by providing early market validation, test and evaluation opportunities and paths to introduce those technologies to a variety of markets, including partners in the public sector.

EMERGE Demonstration Day

In September 2015, *EMERGE* participants demonstrated their technology concepts and prototypes to the investor community and industry in San Francisco, CA. Demonstrated technologies such as mouth guards that use bone conduction technology for communications, solutions designed for those with disabilities that help first responders operate in dark, smoky or loud environments, a triage language translator for patients to communicate with first responders despite language barriers and protective gloves with embedded technology to remotely control

Figure 2. EMERGE Demo Day Panel

devices. Throughout the accelerator program, *EMERGE* partners talked to more than 200 accelerators and incubators around the world about wearable technology for first responders.

To learn more about the *EMERGE* Accelerator program, contact DHS Science and Technology email address.

2015-10-27

DHS Science and Technology Directorate
EMERGE Accelerator Program

Meet the *EMERGE* Participants

BearTek Gloves	BearTek is technology embedded into any kind of glove. The technology allows the user to remotely control almost any device. BearTek is used in action sports, military, and industrial applications. The technology also can be used by first responders to control tablets, phones, and other electronic devices without taking their hands or eyes away from what they are doing.
CyberTimez	CyberTimez helps physically impaired users access cabinets, drawers and appliances using a voice-controlled wearable device. CyberEarz uses 'reverse teleprompter' technology to enable hearing impaired users to convert speech to text that is viewable on Google Glass. CyberEyez restores mobility, employability, and independence to visually impaired users by enabling them to navigate, communicate and operate in a sighted world. This technology also can help first responders who are faced with a challenging environment (e.g., smoked filled building; or loud public gathering) that can limit their senses.
Dashin	Dashin aggregates data from wearable sensors, and other data gathering devices worn or used by first responders. Dashin uses a dashboard design that is easy-to-read and lets incident commanders understand physical stress of first responders under their command during emergencies.
EnergyBionics	EnergyBionics develops wearable energy products that harvest ambient energy for use in powering mobile devices. The technology is an analog watch that harvests solar energy and powers mobile devices, such as smartphones, lights and many other mobile devices. Future versions will include thermoelectric energy harvesting from body heat.
Human Systems Integration, Inc.	Human Systems Integration (HSI) created a remote physiological monitoring systems that is wearable (e.g., watch, jewelry). HSI's system monitors respiratory and cardio sensors. The technology can be used by industrial, military, and first responders to understand the health of their workers, especially in difficult times such as an emergency.
Juxtopia	Juxtopia is a biomedical and information technology company that delivers products and services to improve human performance
Kofman Technologies	Kofman Technologies designs products that reduce lethality in peacekeeping and law enforcement
LanguageMAPS	LanguageMAPS created mobile application that helps first responders by translating a number of foreign languages into English. The application also includes a way that the patient can point to a body image to explain their symptoms to Emergency Medical personnel.
Mindtalk	MindTalk uses bone conduction technology in mouthguards to allow athletes to listen to music and receive radio communication. The MindTalk mouthguards can be adapted to help first responders use a two way communication system and hear communications in in extreme, loud environments where headphones or radios will not work well and or in industrial situations where ear protection is necessary.
International Thermodyne	International Thermodyne PowerFelt is a topological thermoelectric organic material made up of multi-walled nanotubes. It harvests the thermo and turbulent motion that occurs naturally in our environment and converts it into usable electrical energy. It is a flexible, thin, cloth-like organic material that can be used in a variety of ways to power wearable devices for military, industrial, consumer, and first responders use.
Neumitra	Neumitra develops embedded biomodules to measure the autonomic nervous system. The technology software can link contextual data, such as events, locations, and activities, with the physiology of stress, including sleep, to help identify and manage stress. The technology can be used by industrial, military, and first responders to understand stressors correlation to events or incidents, and help organization better manage the stress of their workers
Nucurrent	Nucurrent designs wireless recharging with efficient, thin, and fast antennas and electronics. It enables wireless charging of devices.
Pivothead	Pivothead creates innovative "smart" eyewear cameras embedded with technology and connectivity. It is a high-quality wearable camera.
Rithmio	Rithmio developed a gesture recognition platform to create accurate and personalized gesture-based products such as wearables, smartwatches or connected sporting equipment.
Select Engineering Services	Select Engineering Services is an automatic injury detection system. The system has sensors that detect some kind of penetration to a person such as being shot, stabbed or hit by shrapnel. It automatically sends the person's identification, location, and injuries to commander.
SensorSphere	SensorSphere developed an environmental monitoring robotic ball. The robotic ball is controllable and can have a variety of environmental sensors for first responders or anyone else that needs to see an area before venturing in. The robotic ball can be throw in or driven into the area and to monitor environmental data and stream HD video from inside to give first responders an understanding of the inside of a building and any environmental issues or hazards, while operating maintaining a safe distance.is a wireless connected robotic ball with environmental monitoring sensors. First Responders can use it by controlling and driving the robotic ball into dangerous situations and gather situational awareness.
TeleSense	TeleSense is an Internet of Things company providing cost-effective, scalable, and highly configurable environmental monitoring and control solutions with the goal of increasing efficiency and public safety.
TRX	TRX delivers location and mapping indoors, where GPS does not work, without relying on networked beacons or infrastructure.