DHS Science and Technology Directorate

Sensor-Smart Affordable Autonomous Robotic Platform

Robotic Capabilities Just in Time

When disasters strike, the need for robotic capabilities can range greatly—from aerial support to sensors in tunnels—depending on the specific challenges for first responders. The location and varying disaster scenarios make it very difficult to preposition robotic supports without knowing the specific requirements of the response. Additionally, limited storage space and funding compound the ability to prepare for all disaster response needs.

Remote Aerial Payload Transport Robot (RAPTR)

Throwable Orientation Switching Robot (TOSR)

As a result, the Department of Homeland Security (DHS) Science and Technology Directorate (S&T) is putting together a robotic "App Store" with many proven robots that first responders can print in 3-D and assemble onsite with standard electronic parts. This means first responders will only need to deliver one trailer to disaster areas that have the robots with the right capabilities instead of prepositioning prebuilt supplies.

The library of validated robotic solutions will make this possible as it will catalog the robots to meet specific challenges at a disaster scene. Furthermore the 3-D printing components will allow response teams to deploy these customized tools in a fraction of the time.

The "App Store" system is designed with e-Commerce capability, allowing robot inventors to contribute their proven designs and receive compensation when users access their intellectual property. The store requires standard components to ensure the robots in the catalog can be produced with pre-stocked parts.

S&T Robotic App Store

Partnering to Maximize Technology Investments

DHS is working with Oak Ridge National Laboratory, National Institute of Standards and Technology along with other private industry entities to reduce costs on replicated technologies, and maximize return on technology investment. The Sensor-Smart Affordable Autonomous Platform project won the prestigious 2014 Tibbetts Award from the Small Business Administration. A prototype of the robotic "App Store" will be delivered to Customs and Border Protection in 2015.

Homeland Security
Science and Technology

To learn more about the Sensor-Smart Affordable Autonomous Robotic Platform, contact sandt.rsd@hq.dhs.gov.

2014-24-10