DHS Science and Technology Directorate
Leveraging Existing Video Cameras for Radiation Detection Capabilities

Understanding Gaps in the Interagency Rad/Nuc Response and Recovery Architecture

Many metropolitan police departments have a large number of video cameras deployed for surveillance purposes. Commercial technologies have been developed that allow these video cameras to be used as radiation detection devices. Though not as sensitive as personal radiation detectors, cameras with this software may be capable of detecting a large source that may be used in a radiological dispersal device (RDD) or radiation emitting device (RED) to harm the public. One such technology, called GammaPix, may be able to operate seamlessly with these existing surveillance cameras so that a radiation detection network can be developed from equipment that is already in place.

Partnering with NYPD to improve radiological incident awareness

The New York City Police Department (NYPD) approached the National Urban Security Technology Laboratory (NUSTL) to perform independent testing and evaluation of the GammaPix technology when used with their surveillance cameras that are currently operating within New York City. This project will include extensive testing of the GammaPix software to determine if it meets the radiation detection requirements of the NYPD when the video cameras are subjected to varying light levels, camera images, and environmental factors.
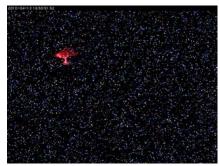
Testing and evaluation to enhance radiation detection capabilities

NUSTL is a government-owned, government-operated laboratory that performs independent testing and evaluation of equipment and technologies to support first responders. The NUSTL team, partnering with Brookhaven National Laboratory (BNL), will evaluate the GammaPix software for effectiveness to determine if it meets the NYPD's requirements.

Anticipated Results of this Project

Through this project, DHS S&T will provide a test report to the NYPD detailing the performance of the camera detection system under various operational conditions. Performance metrics will include detection sensitivity, detection time, sensitivity to different gamma-ray energies, and vulnerability to false alarms. This report may be leveraged by other local and state first responder agencies interested in pursuing the use of this technology.

Video surveillance camera with radiation detection output screen

Building Critical Relationships and Partnerships to support Rad/Nuc Preparedness

As with all projects in DHS S&T's Rad/Nuc Response and Recovery R&D portfolio, this work relies heavily on first responders to assist in the scoping and identification of responder requirements. The testing and evaluation associated with this project is being conducted with the following DHS S&T partners:

- Brookhaven National Laboratory
- New York Police Department