NIJ Sensor, Surveillance, and Biometric Technologies Center of Excellence

NLECTC National Law Enforcement and Corrections Technology Center

NIJ

A program of the National Institute of Justice

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FACT SHEET

ManTech International Corporation operates the Sensor, Surveillance, and Biometrics Technologies Center of Excellence (SSBT CoE) in support of National Institute of Justice (NIJ) research and development (R&D) efforts. Areas of focus include body-worn cameras, through-the-wall surveillance, novel sensors, video surveillance, handheld biometric devices and biometric information technologies. The primary role of the Center is to assist in the transition of criminal justice technology from the laboratory into practice by first adopters.

The SSBT CoE provides scientific engineering advice and support, R&D program support, and outreach and networking to law enforcement and corrections agencies nationwide. The Center offers the following services:

- Identifying technology and operational requirements.
- Supporting NIJ's research and development programs.
- Testing, evaluating and demonstrating technologies.
- Supporting the adoption of new technology.
- Developing technology guidelines and standards.
- Providing technology assistance and support to criminal justice agencies nationally.

More information on the Center can be found at https://www.justnet.org/our_centers/COEs/sensor-tce.html

Current SSBT CoE Activities

Device and Software Test and Evaluation. The development of advanced biometric and sensor prototypes is currently being funded by NIJ. There is a need to conduct independent test, evaluation and application analysis of the devices and software tools to improve ongoing R&D and provide an operational context for the capabilities and usage of the devices in law enforcement. In support of that mission area, the Center is conducting testing and evaluation of the following systems:

- **Long Range 3D Facial Recognition (Biometrics):** Evaluating a portable long-range 3D Facial Recognition Binocular prototype in laboratory and operational environments. In addition, the Center is investigating the operational use of facial recognition at a distance capability in law enforcement.

The AKELA Standoff Through-wall Imaging Radar (ASTIR) is currently being tested by the Center. (Inset) The user interface displays radar data and movement patterns for targets.

- **Facial Matching With Feature Annotation (Biometrics):** Evaluating a software tool to improve the match accuracy of facial images using annotation of macro- and micro-features. The tool will be evaluated for use in forensic, investigative and identification applications.
- **Through-The-Wall-Surveillance Systems (Sensors):** Evaluating a prototype through-the-wall sensor (TTWS) for use by law enforcement and first responders. The system is being evaluated in relevant field environments. In addition, the Center has produced a market survey assessment of existing TTWS systems and is developing a summary report of lessons learned and best practices for practitioners. https://www.justnet.org/pdf/00-WallSensorReport-508.pdf
- **Crowd Behavior Video Analytics Tool (Surveillance):** Evaluating a prototype video surveillance tool that uses intelligent video analytics to provide event and scenario recognition. The Center will assess the use and availability

of video content analytics in criminal justice and conduct controlled testing and evaluation of the prototype surveillance system.

- **Body Cavity Screening Device (Sensors):** Evaluating a prototype body cavity screening device designed to use electric field tomography to screen persons for metallic and non-metallic contraband concealed in body cavities in a reliable and non-invasive way. The Center will also produce a market survey of body screening technologies in criminal justice.

Latent Print Interoperability. The Center is conducting a nationwide survey that "takes a snapshot" of state and local law enforcement latent print interoperability. Questions focus on determining the level of latent print interoperability each organization has with other federal, state and local organizations. Determining the current status of latent print interoperability is the first step in finding out what works and what does not. Results will provide a knowledge base for federal, state and local law enforcement administrators and policymakers when making future decisions. Potential respondents include all automated fingerprint information system (AFIS) managers and administrators.

Evaluation of Contact vs. Contactless Fingerprint Data. The Center is evaluating the benefits, drawbacks and limitations of contactless fingerprint capture. The work is being performed in collaboration with the U.S. Department of Defense. In addition to evaluating the performance of contact vs. contactless fingerprint devices, the Center will develop a database of biometrics to aid future research of contactless fingerprint biometrics (e.g., devices, algorithms, standards).

Assessment of Gun Safety Technology. The Center has conducted a technology assessment and market survey of existing and emerging gun safety technologies for law enforcement and personal use applications. The assessment examined smart or personalized technologies implemented into firearms that prevent anyone other than an authorized user from firing it, thus improving gun safety. Example smart gun technologies included proximity devices, such as radio-frequency identification (RFID) chips and magnetic rings, and biometric access control (e.g., finger or palm prints).

3DMobileID Long-Range Facial Recognition Binoculars by StereoVision Imaging

Body Worn Cameras (BWCs) for Criminal Justice. The Center continues to conduct research and evaluation activities into types of body-worn camera technology and their use in criminal justice applications. To mitigate the lack of procedural or technical standards, the Center published a report that provides an introduction to BWCs and highlights issues and factors that law enforcement organizations should consider prior to and during implementation. https://www.justnet.org/pdf/00-Body-Worn-Cameras-508.pdf

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