National Institute of Justice

NIJ

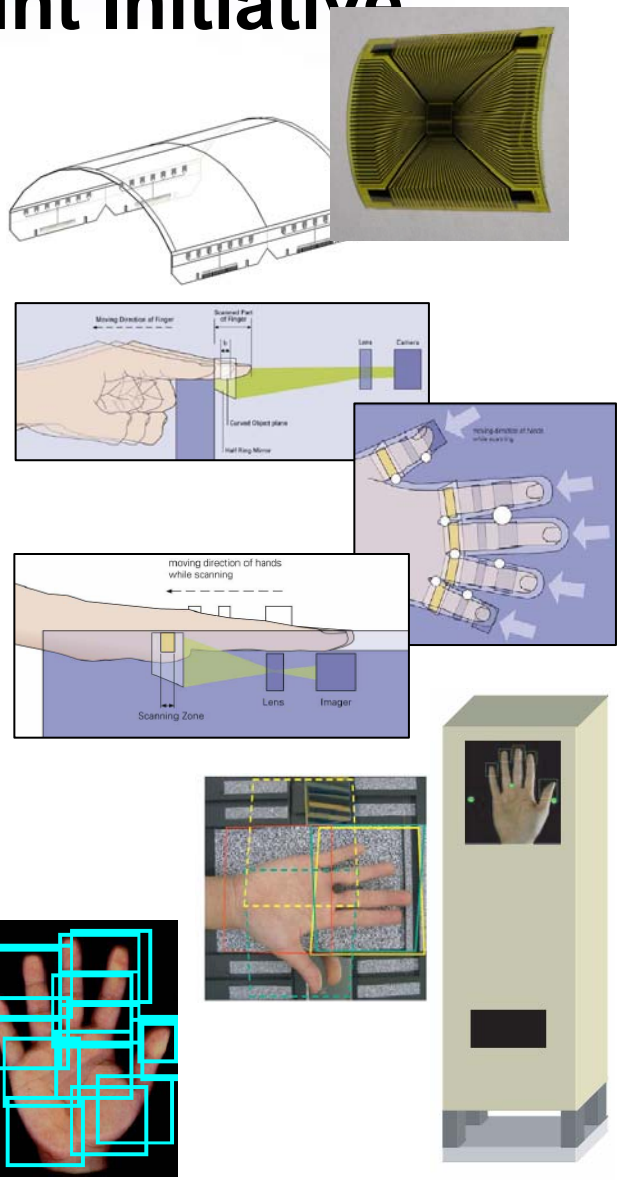
Fingerprint Research & Development

October 14, 2005

Christopher Miles
Senior Program Manager
DOJ/National Institute of Justice
202-616-1110
Christopher.Miles@usdoj.gov

Fast Capture Finger/Palm Print Initiative

- Requirements represent a major step forward in finger and palm print capture technology:
  - Capture of 10 rolled-equivalent fingerprints in 15 seconds or less;
  - Capture of both palms in 1 minute or less;
- Four Efforts Underway:
  - Crossmatch is developing a U-shaped flexible polymer foil base substrate with a sensor that conforms to the shape of each finger;
  - TBS North America is developing a circular optical mirror system that the fingers are drawn across creating an image; and
  - Carnegie Mellon University and University of Kentucky are developing camera-based systems that use structured light to capture the 3-D shape of the hand and multiple high-resolution flash images to capture the friction ridges of the fingers and palms.



Fast Capture Initiative General Comments

- Each project will produce working devices in 18 months to 2 years that are suitable for independent performance testing.
- Total Initiative budget is $7 Million including evaluation of resulting devices.
- Funds to initiate the first year of each effort has been provided by the FBI/CJIS Division, Justice Management Division, Department of Homeland Security, and the Department of Defense.
- NIJ will fund an independent technology assessment against NIST & FBI image and performance standards.

"If successful, this initiative will leave a legacy for law enforcement."

The Honorable James B. Comey
Deputy Attorney General
January 25, 2005

NIJ Friction Ridge Awards

NIJ made seven Friction Ridge awards ($2.4M) in September 2005:

- Statistical Models:
  - Forensic Science Service: Simulation of the topographical process adopted by examiners to describe the spatial location relationships of ridge arrangements and ridge flow.
  - Research Foundation of SUNY: Error rates, probability of match/exclusion and strength of evidence using Level I & II features.
  - Indiana University: Integration of human expertise to incorporate the visual search patterns of fingerprint examiners into machine learning algorithms to quantitatively analyze fingerprints.
- Ultra Scan Corporation: Growth changes in the spatial orientation of minutia during maturity of children through adolescence and develop an age-progression fingerprint model.
- International Biometric Group: Developing tools to capture, process and statistically evaluate Level III characteristics at 500 – 4000 dpi.
- Oak Ridge National Laboratory: Study of degradation chemistry and new macro-Ramon imaging methods for detecting latent prints to enhance chemical imaging on any material, increase the recovered latent print area, and to differentiate between fresh and older latent fingerprints.
- The Israeli National Police will research improved cyanoacrylate methods for developing fingerprints on handguns.

National Institute of Justice

NIJ

Fingerprint Research & Development

October 14, 2005

Christopher Miles
Senior Program Manager
DOJ/National Institute of Justice
202-616-1110
Christopher.Miles@usdoj.gov