Smart Policing and Role of Technology

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India: Some numbers

- India's population will reach 160 crore in 2060
- 10-24 years: 35.6 crore, compared to 26.9 crore in China
- 65% population below 35 years
- India just crossed 100 crore mobile connections
- Indian economy growing at 7%+ annually
- 443,000 road accidents, with 147,423 deaths
  - 3% of GDP

Priorities of Policing – The FBI Example

1. Protect the United States from terrorist attack

2. Protect the United States against foreign intelligence operations and espionage

3. Protect the United States against cyber-based attacks and high-technology crimes

4. Combat public corruption at all levels

5. Protect civil rights

6. Combat transnational/national criminal organizations and enterprises

7. Combat major white-collar crime

8. Combat significant violent crime

9. Support federal, state, local and international partners

10. Upgrade technology to successfully perform the FBI's mission

Priorities of Indian Policing

- Maintain public order

- Prevent, investigate and deter crime

- Protect women, children and the elderly from violence

- Combat terrorism

- Manage traffic

- Enforce social justice legislation

- Guard India's borders

Prime Minister's Vision of Smart Policing

- **S**trict and **S**ensitive
- **M**odern and **M**obile
- **A**lert and **A**ccountable
- **R**eliable and **R**esponsive
- **T**echno-savvy and **T**rained

Strict and Sensitive

- Rule of Law
  - Free registration: Multi Channel Receipts (CCTNS)
  - Speedy investigation: Reduce Paperwork (Pen computing/Apps/Custom forms)
  - Deter potential offenders: Use projection through personalised messaging
  - Tracking of convicts: Databases, workflow, interoperability
- Customised approach
  - Rehabilitation of victims: Work with NGOs, open to collaboration
  - Population segmentation: Crime Prevention messaging
  - Juvenile protection, handicapped population

Modern and Mobile

- Openness to learning
  - Use of LMS, customised planning, buffet of courses
- Incentives for knowledge sharing/Premium on expertise
  - Use of knowledge management platforms/mailing lists/Wikis
- Mobility through sensors: Will you ever have a Ferrari?
  - State of the art communications
  - Robust and resilient
  - 'Reach scene of crime in a jiffy'
  - High state of fitness: diet and exercise/duty scheduling/work planning

Alert and Accountable

- Citizens as eyes and ears: Single number model
  - MP Police Project
- Internet of Things: Traffic management, CCTV, gunshot sensors
- Body cameras

Reliable and Responsive

- Quality initiatives
  - TQM
  - Six Sigma
  - Standards
  - External audits
- Responsive
  - Use of metrics
  - Feedback surveys
  - Mystery shopping

Techno-savvy and Trained

- Create techno-core: recruit appropriately
  - Make technology a way of life: look out for opportunities of identifying, understanding, testing and implementing new technologies
- Training Mantra
  - Define the training goals
  - Set up infrastructure
  - Outsource content creation
  - Measure effectiveness

Importance of learning

"The only sustainable competitive advantage is an organization's ability to learn faster than the competition."

— Peter M. Senge

So, how do we ride the technology horse?

- Important to have a long-term vision, with clear priorities
- Technology, by itself, is not sufficient: People + Process + Technology is what counts
- Technology is expensive: Money needs to be spent wisely
- Start small   ->   Test quickly ->   Scale successes
- Seek help from technologists: how can NCETIS help?

Internal Security Issues for Technology

- Urban Terrorism and LWE Problems
  - Several bomb blasts
  - Terrorists using state of the art technologies
- The Policing
  - Multidimensional involving intelligence and technology integration
  - Forensic investigation, evidence management and evidence authentication
- Internet and Social Media
  - Internet telephony and Voice over IP by perpetrators of crimes
- Public Safety Disaster Recovery and Emergency Response
- Cyber and Economic Crimes

Homeland Security Centers in US and UK

- Center of Excellence in Security and Cybercrime, Scotland, UK.
  http://www.sfc.ac.uk/web/FILES/CMP_InvestmentCommittee2July2010_02072010/IC_10_46_Centre_of_Excellence_in_Security_and_Cybercrime.pdf

- Department of Homeland Security Centers of Excellence, USA.
  http://www.dhs.gov/files/programs/editorial_0498.shtm

Technology -a key enabler

- Use of technology improves intelligence gathering, crime detection and law enforcement

- Modern Technology enables in a significant way forensic investigation

- Technology for Homeland Security - an upcoming focus research field
  - IEEE Conference on Technologies for Homeland security http://ieee-hst.org/

National Center of Excellence in Technology for Internal Security

NCETIS

MANUFACTURING INDUSTRY

R&D LABS

STATE POLICE FORCES
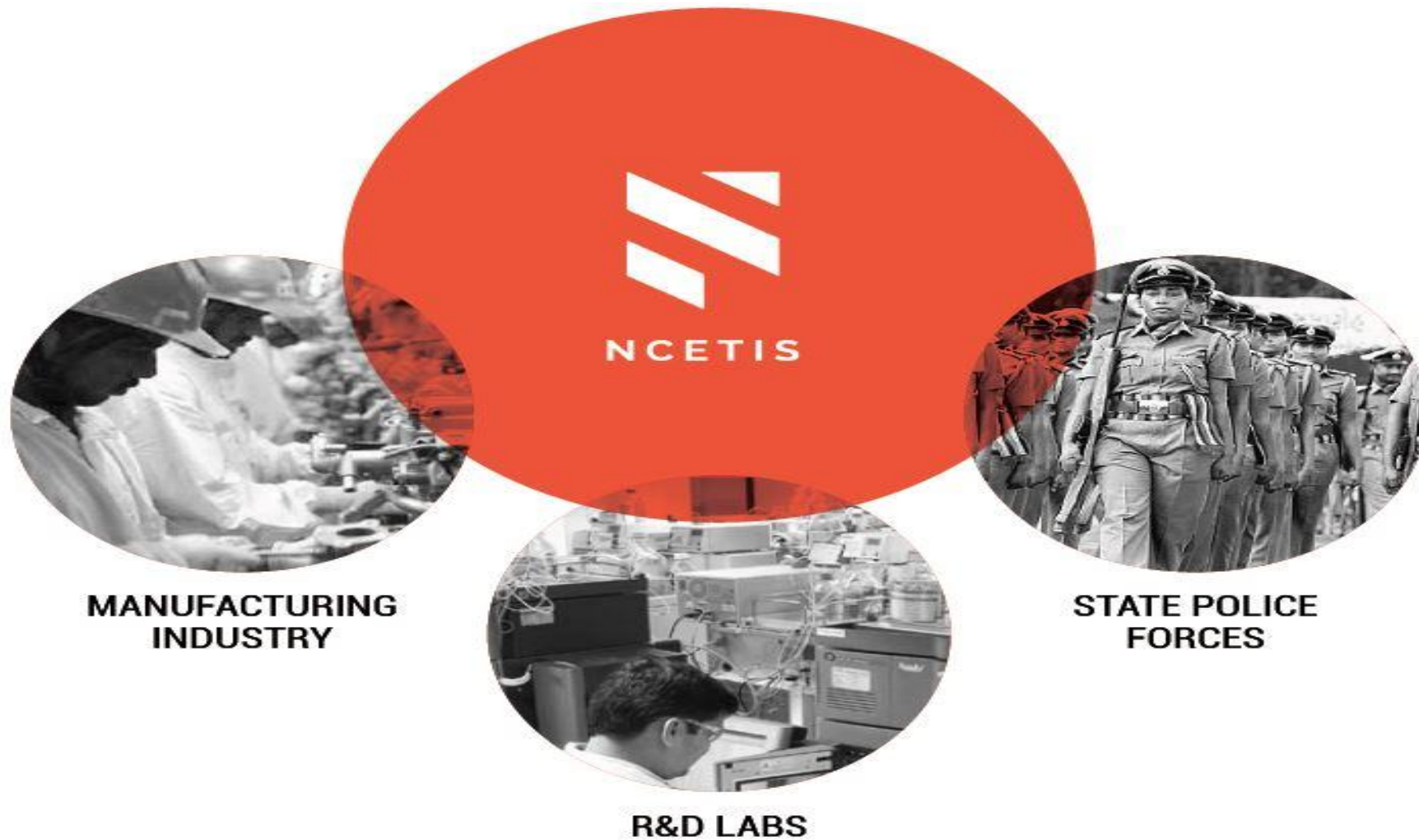
Scope of the Center

- National Center focusing on the needs of internal security
- Coordinate with other institutes and labs in the country
- Strong engagement with industry
- Target towards self sufficiency in the area of ESDM for strategic sector

Objectives of NCETIS

- To undertake research to address the technology innovation gaps for security
  - Short term, long term and medium term
- To transform the research outcomes into prototypes and facilitate technology transfer for product development – **engage with Indian industry for strategic needs**
- To undertake research related to regulatory issues
- To undertake consulting and advisory services for security forces about technology choices
- To undertake training activities for technology appreciation
- To serve as a resource center for state police forces to help them with various challenges
- To act as nodal agency to provide technology assistance at all levels to central and state police forces and other policing agencies

Focus Areas of the center

- Wireless Communications System
- Social Networking and Internet
- Video Surveillance and Analysis
- Ground Penetrative Radar (GPR) for Landmine Detection
- Unmanned Vehicles
- Cyber and Data Security
- Biometric Applications
- Sensors and Detectors for Explosives, Landmines, Chemical and Biological Warfare
- Thermal Imaging
- Product Design, Product Interaction Design and Prototyping

Global Trends in State of the art Commuications

- Other nations transitioning to broadband wireless for public safety
  - State of the art system deployed in urban warfare (NATO operation in Afganistan)

- US National Broadband Plan includes broadband public safety communication as one of the goals
  - http://www.broadband.gov/plan/

- Several trials reported using 4G systems in emergency scenario
  - May 2011 US defense force demonstrated such system during raid on terrorists hidden in Pakistan

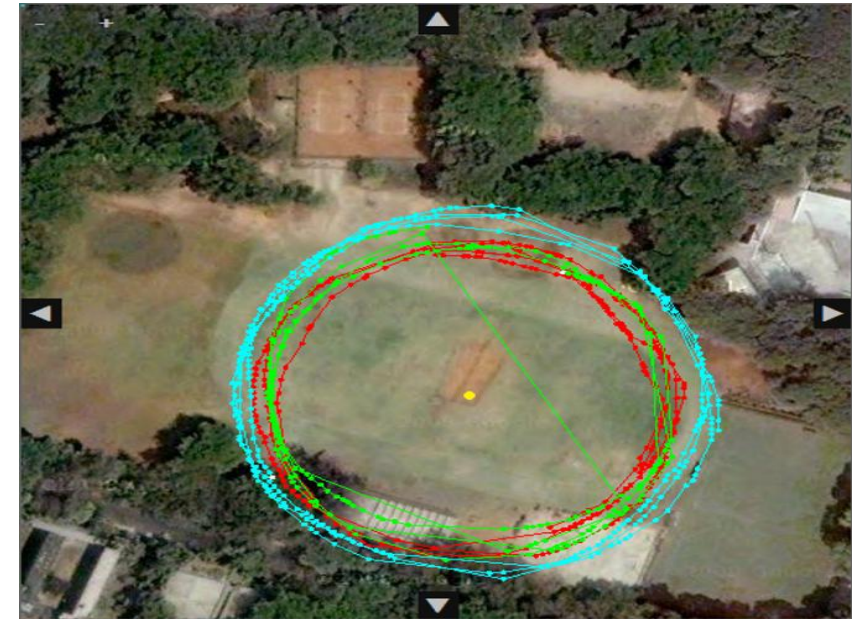# Technologies Developed at IIT Bombay

Explosive Detector
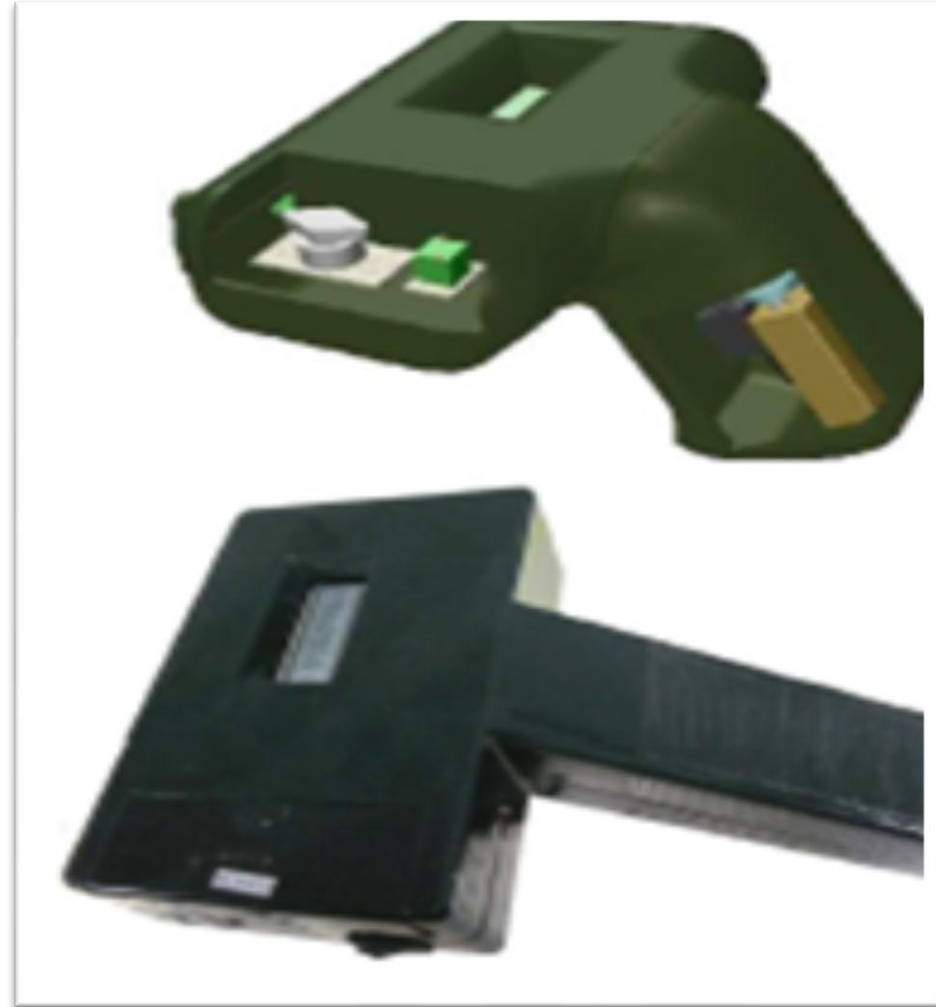
Technologies Developed at IIT Bombay

Robotics & Autonomous Vehicles

MAV Visiting waypoints

Geo-target localization

3 MAVs in co-operative mission

Technologies Developed at IIT Bombay

Night Vision : Long range surveillance

Ref : http://www.flir.com.