



CHALLENGES AND OPPORTUNITIES FOR SAFE CITY AND LEVERAGING IOT & AI FOR

TRAFFIC MANAGEMENT AND PUBLIC TRANSPORT MANAGEMENT



MADRAS SECURITY PRINTERS

ABOUT MSP

- Founded in 1976, Headquartered in Chennai and located PAN India
- Four Decades of experience in e-Governance, Security Printing, System Integration and other related products
- MSP is certified to multiple ISO Standards & CMMI level 5
- 1000+ staff members, >200 in R&D



SAFE CITY

A **Safe City Project** is a comprehensive initiative that integrates various technologies, infrastructure, and strategies to enhance urban safety and security.



INTEGRATED COMMAND AND CONTROL CENTERS

- Centralized hubs that monitor data from surveillance systems, traffic management systems, and emergency services to coordinate a quick response to incidents.



CCTV CAMERAS

- Extensive network of high-definition cameras placed in public spaces, intersections, transport hubs, and sensitive areas.



REAL TIME EVENTS MONITORING

- System that allow police to access real-time data, report incidents, and receive alerts on their mobile devices.



AI-BASED MONITORING

- To analyze data from various sources and identify patterns or anomalies indicative of threats.
- Utilize artificial intelligence (AI) and machine learning (ML) to analyze video feeds automatically, identifying suspicious activities or individuals and alerting authorities without human intervention.

In pursuit of enhanced security, many nations have embraced widespread CCTV surveillance, Out of which

CHINA RANKS AS NO.1 country which has implemented a strong surveillance system followed by USA

- **CHONGQING, CHINA:** China, in general, has some of the most surveilled cities in the world, with Chongqing leading in terms of the sheer number of cameras.
- **DELHI, INDIA** is cited as one of the cities with the highest number of surveillance cameras per capita. A 2022 report by Comparitech highlighted that Delhi had over 1,826 CCTV cameras per square mile, making it one of the most surveilled cities globally.

Other cities with extensive surveillance networks include:

- **LONDON, UK:** Known for having a significant number of CCTV cameras, particularly in the central business districts.

Surveillance cameras have become a common method to combat crime. In the UK alone, an estimated 4 million cameras have been installed (Associated Press, 2007). There is a major concern, however, regarding their intrusion upon privacy. To motivate the use of surveillance cameras, it is therefore important to begin by carefully studying the extent to which cameras deter crime.

Here, I exploit the fact that surveillance cameras were introduced in the Stockholm subway system at different points in time during the period 2006–8. Surveillance cameras were found to reduce the overall crime rate by approximately 25% at stations in the city centre. Such a station recorded on average approximately 11 crimes per month before introduction of the cameras. The reduction therefore amounts to almost three fewer crimes per station and month. The effect was immediate, which indicates that it was due to deterrence, and lasting. The analysis also shows that the cameras did not deter crime in the periphery.

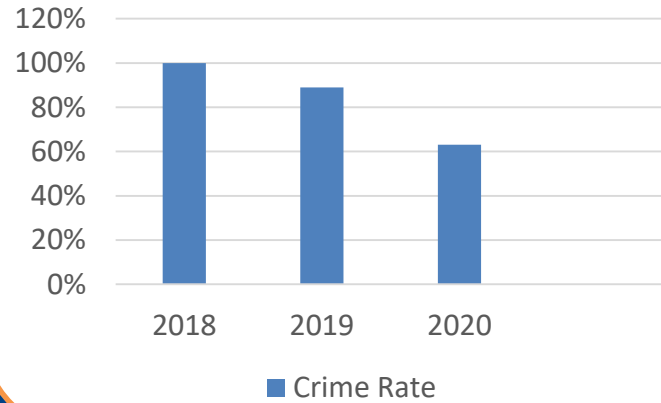
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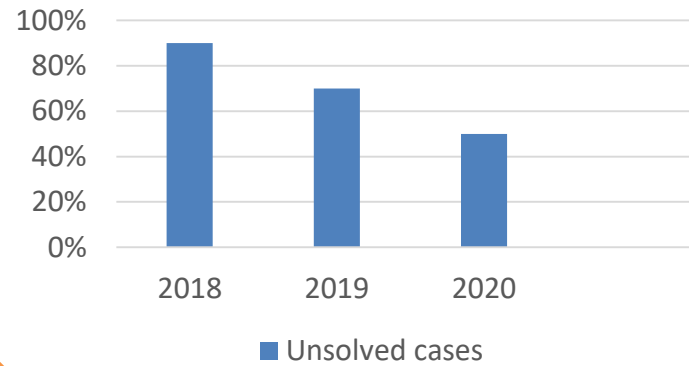
The Economic Journal, 125 (November), F289–F305. Doi: 10.1111/eoj.12327 © 2015 Royal Economic Society. Published by John Wiley & Sons, 9600 Garsington Road, Oxford OX4 2DQ, UK and 350 Main Street, Malden, MA 02148, USA.

ANALYSIS OF CCTV IMPACT ON CRIME REDUCTION

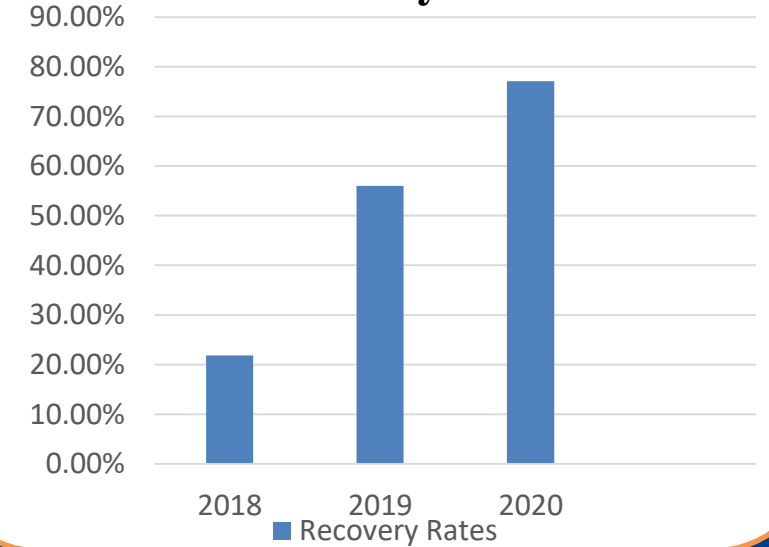
Crime Rate



Unsolved Cases



Recovery Rates



Significant reduction in property offences post-CCTV installation:

- 19% decrease in 2019
- 37% decrease in 2020
- Reduction in unsolved cases by 50% from 2018 to 2020.
- Recovery rates rose from 21.84% in 2018 to 77.10% in 2020.

**Data source(Article): Impact of CCTV surveillance on Crime from IIT Kanpur
<https://ccjr.cse.iitk.ac.in/opapers/Impact%20of%20CCTVs%20on%20Crime.pdf>*

WHY SAFE CITY ?

Sustainable Development

Crime Prevention

Data-Driven Governance

Public Trust and Confidence



Safety for Women and Children

Improved Emergency Response

NEED FOR SAFE CITY



Emergency situation



Snatching



Eve teasing



**Identifying areas
prone to theft and
snatching**



Group Vandalism

Public surveillance Cameras improve Safety of the Public and reduces crime rates:

- Any footage from a CCTV surveillance camera can be produced in a court of law as evidence, cameras are a massive boon to the police.
- CCTV camera installed at important locations will act as a serious deterrent to criminals and anyone carrying out illegal activities.

CHALLENGES IN IMPLEMENTATION OF SAFE-CITY PROJECT



Infrastructure and Technological Challenges

1. Compatibility issue with existing Technology
2. Network and connectivity issue
3. Data Management



Privacy and Ethical constraints

1. Surveillance and Privacy
2. Public Trust



Legal and Regulatory Challenges

1. Regulatory Compliance
2. Enforcement and Accountability



Cybersecurity threats

1. Vulnerability to hacking



Public Awareness and Engagement

1. Community Participation



Co-Ordination among Stakeholders

1. Inter Agency Collaboration
2. Bureaucratical Hurdles



Scalability

SAFE-CITY PROJECT – CASE STUDY- CHENNAI

- MSP Established a Secure environment in public areas and work locations by installation of surveillance cameras powered by AI.

We have successfully Installed :

- **5250 CCTV Surveillance Cameras at**
- **1750 Key Locations**



- The servers and storage system of surveillance data and analysis will be housed in the Data Centre which would be setup to cater to the requirements of the solution.

ANALYTICS AVAILABLE FOR SAFE CITY PROJECT

CASE STUDY-CHENNAI



Camera Tamper



Chain/Handbag Snatching



Crowd Detection



Vandalism Detection



Intrusion Detection



Mobile Snatching



Object Classification



People Fighting



Person Collapsing



Strike/Hartal



Suspected appearance



Unattended Object



Women Surrounded by Men

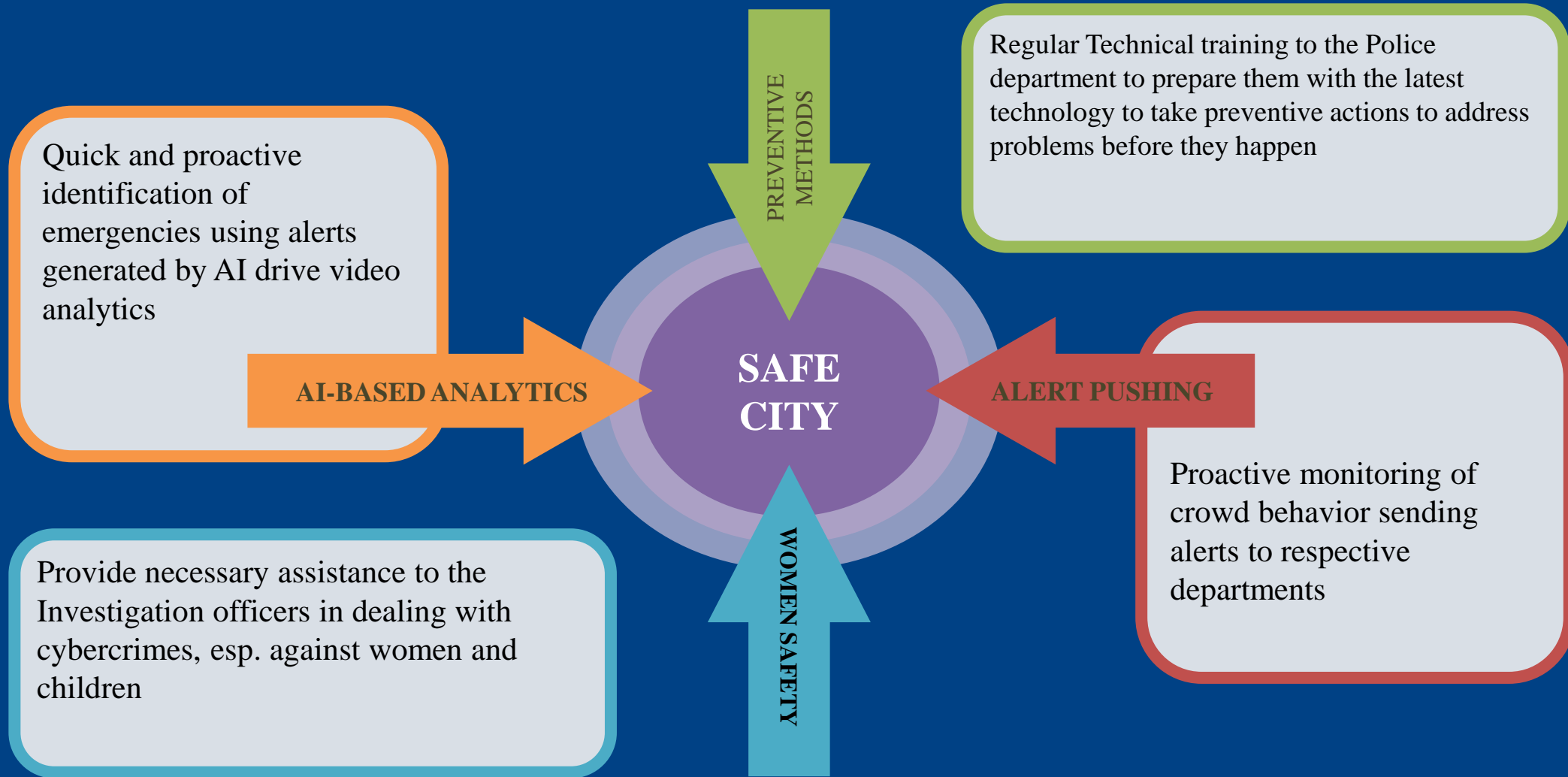


Women/Infant Abduction



Zone Monitoring

KEY FEATURES



FUTURE SCOPE FOR SAFE CITY PROJECT CASE STUDY -CHENNAI

SAFE CITY



Advanced Video Analytics

- AI-driven video analytics will enable more sophisticated real-time monitoring, including the ability to recognize suspicious behavior, identify individuals, and detect anomalies automatically.



AI-Driven Cybersecurity

- AI systems could monitor and protect surveillance networks, identifying and mitigating cyber threats in real-time



Smart Sensors and Devices

- The Internet of Things (IoT) will enable the deployment of smart sensors across cities to monitor various parameters like air quality, noise levels, and foot traffic, providing a holistic view of urban safety.



Unified Urban Management

- Surveillance will be integrated with other smart city systems (traffic management, energy grids, public transport), creating a unified platform for managing urban environments more efficiently.

FUTURE OPPORTUNITIES

Machine Learning and
Artificial Intelligence

Sophisticated Encryption
Technology

Various Types of Violations
can be Detected

Edge Analytics

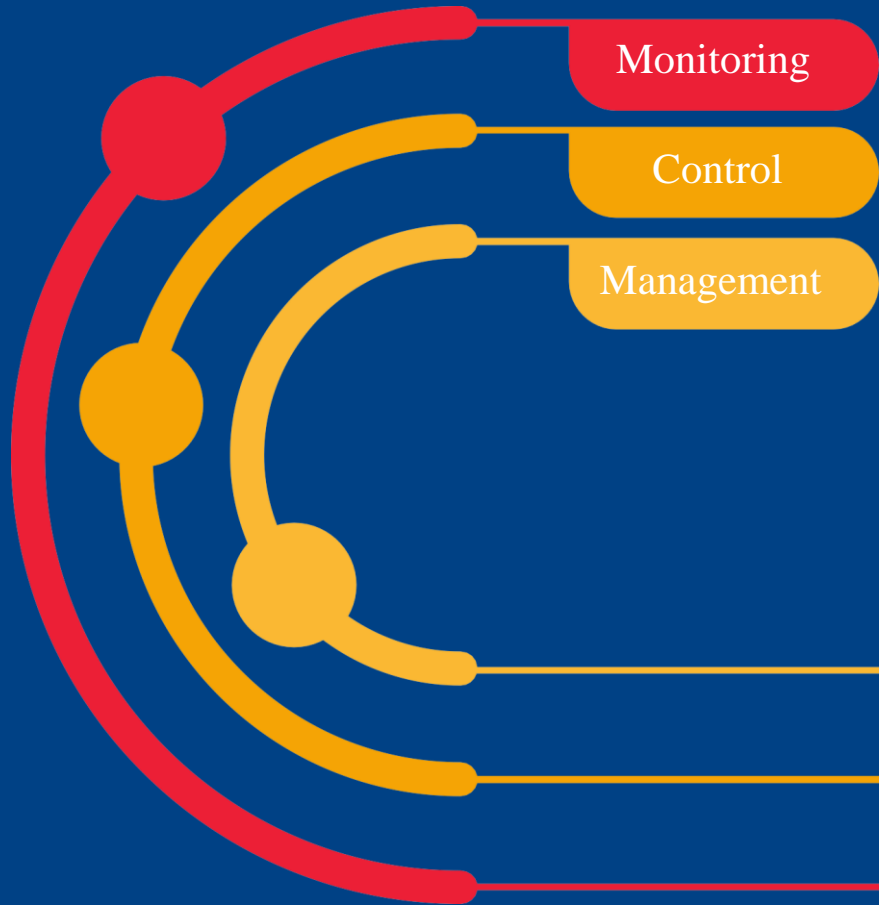
Traffic Management and
Control from ICC

Mobile Application and
SMS Alert in case of
Violation

Intelligent Traffic Routing
and Regulation



TRAFFIC SURVEILLANCE AND ENFORCEMENT



- ❖ ANPR Search
- ❖ Speed Violation Detection
- ❖ Red Light Violation Detection
- ❖ Unauthorized Parking Detection
- ❖ Wrong way Driving Detection
- ❖ No Helmet and Triple Rider Detection

Contact Us

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