

# Technology and Policing in India: Exploring the Issues and Challenges

A. Vedha Valli

Assistant Professor, Tamil Nadu Dr. Ambedkar Law University, School of Excellence in Law

## ABSTRACT

Technology plays a vital role in all walks of life. Crime and crime investigation is no exception to this scenario. As technology evolved so did the crimes. Technology is being used as a tool to commit a crime. Traditional crime investigation technique might not be compatible to resolve this problem. Currently information and communication technology has been used by police to store, collect and share data. Space technology is also been used in India for collecting real time information which helps in predicting the occurrence of a crime. Similarly, applications are developed in such a way to alert police in case of emergency. CCTV is used through the country to keep a watch on commission of crime. These recordings play a vital role in investigating and arresting a crime suspect. Face recognition technologies are also used to identify the suspect. A person's social media profile can be used to know about him. On the other hand, use of technology by police has also leads to repercussion like breach of privacy. It is worth noting that there is no legislation to regulate the use of technology by police. Although we have Information Technology Act 2000, it does not provide exclusively for use of Information Technology by Police. Usage of technology in preventing and investigating crime needs proper training. Technologies that are invented in other countries might be expensive. Police and private sector partnership is essential for using technology, which could only be achieved through a legislative back up. The author in this research paper would examine a wide range of technology being used by modern police in India, legislative lacunas, issues and challenges in using technology and recommend a suitable solution for the problem.

**KEYWORDS:** Technology, Investigation, Cyber-crime, Policing, Prevention.

## INTRODUCTION

Technology plays a vital role in all walks of life. Technology is being used as a tool for committing a crime, which could be efficiently tackled or prevented only by technology. Traditional method of crime investigation might be insufficient to handle the situation. Police in India are using various technologies including artificial intelligence, space technology, communication technology etc. various applications are also being developed by police department to help in crime prevention and investigation. Technology has become an important part of criminal justice administration. The adoption of emerging technology can also have far reaching consequences on police behaviour, in the control exercised over the public, the real task is to bring in a balance between public safety and privacy. The major drawback is lack of expertise in utilising the technology efficiently. Police-citizen ratio in India is lower than what is recommended by United Nations. In India information and communication technology is regulated by Information Technology Act 2000, but the act does not focus on use of technology by police. Neither does the criminal procedure code nor Police Act. Police force comes under state subject as per Entry 2 of List II of the VIIth

Schedule in the Constitution of India. Although Ministry of Home Affairs from time to time has implemented various schemes to incorporate science and technology into policing. Indian Telegraph Act 1885 regulates the legal interception of communication by law enforcement agency. Collective reading of IT rules and Telegraph rules provides that strict confidentiality shall be maintained in interception, monitoring, collecting and decryption of data. This legislation enables law enforcement agencies to establish and maintain wireless communication. This law is insufficient to regulate usage of all forms of technology by police.

### **TECHNOLOGY USED BY POLICE IN INDIA**

In India, projects such as Crime and Criminal Tracking Network System (CCTNS), Common Integrated Police Application (CIPA) and Crime and Criminal Information System (CCIS) has been started in 1995 onwards, which aims at digitalising data of existing criminals. These projects has not yet been completed even to this day. This shows the progress is very slow when compared to other countries. But lot of other projects such as “dial 100” has been very successful. Most of the metro areas has this facility but this has to be brought throughout the country. In 2014 at a conference of DGPs held in Gauhati, the concept of “smart policing” was brought into discussion. Incorporating more science and technology in police department and providing training for the officials was the major agenda of the conference.<sup>1</sup> Predictive policing is also emerging in In India. It utilises Artificial Intelligence to predict crimes, victims, perpetrators and location of crime.<sup>2</sup>

There are two branches for which technology is being used by police.

1. Crime investigation.
2. Crime prevention.

Information and communication technology consists of a wide range of technologies which is used in both investigating a crime as well as preventing a crime. ICT including radio, television, closed circuit television system etc. ICT is used in storing, transferring and retrieving data.

Police agencies use frequency range in VHF and UHF spectrum which is exclusive to each state and district. Police department has a separate telecommunication wing to manage the wireless communication network. This system is commonly called as “walkie-talkie”. While mobile phones are much efficient mode of communication, it requires a cell phone tower to receive signals. Whereas walkie talkies are a radio system in itself which do not require a separate tower. This is one the first technology used by police. Artificial intelligent based technologies are taking over the world. It has become crucial in policing as well. Relatively AI in India is still in its early stage but nonetheless it plays a vital role in criminal law enforcement in India. Global Positioning System, is used to track the location of a device. GPS uses satellite technology to track the mobile phones of the criminal. Geographical Information system is also been used to assess the location where the occurrence of crime is more. Hotspot for crime is being identified. Through GIS police is able to efficiently manage the workforce. Police vehicles are also set up with dispatch system which is computer aided. This enables them to dispatch police force to required places.<sup>3</sup>

<sup>1</sup> <https://www.financialexpress.com/infrastructure/airlines-aviation/drones-enabled-smart-policing/2431371/> last visited 12/3/2024

<sup>2</sup> <https://blogs.lse.ac.uk/humanrights/2021/04/16/predictive-policing-in-india-deterring-crime-or-discriminating-minorities/> last visited 12/3/2024

<sup>3</sup> <https://www.police1.com/american-military-university/articles/unintended-consequences-of-technology-in-policing-EQhuM6wsvpCNKqYF/> last visited 13/3/2024

CCTV cameras are a form of ICT which records an event and store the recordings for a particular time period and transmits the same to the monitors that is connected to it. Internet network is used for transmitting the recordings. CCTV is one of the most commonly used technology to investigate a crime as well as monitor and prevent a crime from happening. Nation's capital Delhi has installed over 1826 cameras per square mile.<sup>4</sup> As of 2023, Delhi, Hyderabad, Chennai and Indore are the cities with most number of surveillance cameras.<sup>5</sup> Pune police has solved 133 crime cases with the help of CCTV cameras in 2021 and 336 accused were arrested.<sup>6</sup> As far as the admissibility of CCTV footage is concerned, it was held in *Arjun Panditrao Khotkar vs Kailash Kushanrao Gorantya*<sup>7</sup> certification is not required if the original electronic document itself is produced before the court. CCTV footage is converted in to Digital Video Recorder and it is considered as primary evidence as per section 62 of Indian Evidence Act. Although not all footage can be produced as primary evidence. If the footage is too lengthy it can only be copied in an USB. In such cases it can not be considered as primary evidence and it requires certification from the person who is in charge of the server as per section 65B (4). It is important to note that in spite of rising CCTV surveillance, crime rates are still unaffected.<sup>8</sup>

Indian law enforcement is relying on Facial recognition system which is a technology that matches human face which is captured in a picture or a video with the available data. In 2020 Indian Government has approved to build National Automated Facial Recognition System to be governed by National Crime Records Bureau.<sup>9</sup> In India Currently sixteen Facial Recognition Tracking System is being used by Central and State Government.<sup>10</sup> A study conducted by Techsci in India has reported that facial recognition market is estimated to be worth 4.3 billion US dollars by 2024.<sup>11</sup> FRT uses AI to recognise facial landmarks such as nose, eyes etc and to compare the distance and size of the feature and compare faces recorded in a photo or video with database.<sup>12</sup>

Automated Number Plate Recognition (ANPR) or Automated License Plate Recognition (ALPR) system is a technology that tracks down number plates of vehicle which can prevent automobile theft or identification of criminals<sup>13</sup>. It is reported that in india there is a death in every four minutes resulting from over speeding.<sup>14</sup> ANPR can identify a vehicle that is over speeding.

Body worn cameras are also used to record the events. Drones are used by police all over the country to monitor the any suspicious activity and movements. During covid-19 lockdown police forces were utilizing drones to ensure that people are adhering to covid norms. Indian army and navy has also been using drones and it is reported that an order worth five hundred crores in being placed with Indian drone

---

<sup>4</sup><https://timesofindia.indiatimes.com/city/delhi/no-getting-away-cctvs-helped-police-solve-over-100-key-cases-this-yr-alone/articleshow/85698576.cms> last visted on 12/3/2024

<sup>5</sup> <https://analyticsindiamag.com/how-helpful-is-the-growing-ai-based-policing-in-india/> last visited 12/3/2024

<sup>6</sup><https://www.hindustantimes.com/cities/pune-news/pune-police-crack-122-crime-cases-with-help-of-cctv-footage-333-arrested-in-2021-101644328039536.html> last visited on 12/3/2024

<sup>7</sup> 2020 SCC OnLine SC 571

<sup>8</sup><https://thewire.in/rights/cctv-surveillance-is-rising-in-india-world-but-crime-rates-remain-unaffected>last visited on 12/3/2024

<sup>9</sup><https://scroll.in/article/1006615/in-india-fears-grow-that-facial-recognition-systems-may-used-to-target-minorities>last visited on 12/3/2024

<sup>10</sup> <https://www.thehindu.com/news/cities/Delhi/facial-recognition-technology-law-yet-to-catch-up/article33458380.ece> last visited 13/3/2024

<sup>11</sup> <https://analyticsindiamag.com/how-helpful-is-the-growing-ai-based-policing-in-india/> last visited on 12/3/2024

<sup>12</sup> Lucas D. Introna and Helen Nissenbaum, 'Facial Recognition Technology: A Survey of Policy and Implementation Issues' (2010) 21 Lancaster University: The Department of Organisation, Work and Technology Facial Recognition Technology A Survey of Policy and Implementation Issues - Research Portal | Lancaster University (lancs.ac.uk) last visited on 12/3/2024

<sup>13</sup> [http://paper.ijcsns.org/07\\_book/201102/20110223.pdf](http://paper.ijcsns.org/07_book/201102/20110223.pdf) last visited on 12/3/2024

<sup>14</sup> <https://platerecognizer.com/anpr-for-india/> last visited 13/3/2024

makers. Drone market is booming in a rapid rate in India which is estimated to be worth 1810 million US dollars by end of 2026.<sup>15</sup> Kerala Police is the pioneer to set up Drone Forensic Lab and Research Centre in August 2021.<sup>16</sup> An entity that comes under the jurisdiction of Ministry of Home and Affairs, is allowed to use drones under Unmanned Aircraft System rules 2021 which is commonly called as drone rules.<sup>17</sup> Apart from these technologies various other innovations such as thermal imaging, smart cruisers, biometric, shot spotter etc are also being used by the police. Police can also track a criminal through social media. Though social media is being blamed for increase in crime, a CBI report in 2013 on “social media and law enforcement”, emphasised on usage of social media to maintain law and order. Messaging applications such as whatsapp and telegramme has also played a vital in solving many missing cases. There are instances where criminals are tracked with IP addresses when they log into their social media accounts. Social media has brought into light various human rights violations that happened across the globe.

In 2013 Mumbai police set up a “social media lab” to monitor the social networking sites and to trace any content that could lead to an offence.<sup>18</sup>

#### **APPLICATIONS DEVELOPED FOR SMART POLICING IN INDIA.**

State Governments throughout the country has developed plethora of applications which helps in crime prevention and investigation. Some of the most successful applications are discussed below.

The State of Tamil Nadu has launched an app called “Kavalan” in 2018, through which one can alert police during an emergency. The app will send the location to the police along with live camera streaming.<sup>19</sup> In January 2022, Tamil Nadu CM has launched an application called “CLApp” which enables police officials to apply for leave and get sanction.<sup>20</sup>

In 2020 Kerala government has launched POL APP which can alert police during emergency and FIR can be filed through the app. Similar to “Kavalan” app in Tamil Nadu, Kerala government has launched “Nirbhayam” app in 2021 in which when a woman can press and hold the button which sends signal to police department without making it too obvious to the potential wrongdoer. This application works even without internet connectivity<sup>21</sup>.

Karnataka State Government launched “Suraksha” App in 2017 which helps women in distress situation. The app was first applicable in Bengaluru city was later launched throughout the state.<sup>22</sup> In 2018 “Karnataka State Police App” was launched with SOS button through which a citizen can reach police.<sup>23</sup> The app finds the nearest police station for the user.

<sup>15</sup> <https://www.financialexpress.com/infrastructure/airlines-aviation/drones-enabled-smart-policing/2431371/>

<sup>16</sup> <https://economictimes.indiatimes.com/news/defence/ker-police-comes-up-with-countrys-first-drone-forensic-lab-and-research-centre/articleshow/85298463.cms?from=mdr> last visited on 12/3/2024

<sup>17</sup> <https://egazette.nic.in/WriteReadData/2021/229221.pdf> last visited on 12/3/2024

<sup>18</sup> <https://www.business2community.com/world-news/indian-police-leveraging-social-media-platforms-messaging-apps-maintain-law-order-0815650> last visited on 13/3/2024

<sup>19</sup> <https://www.thehindu.com/news/national/tamil-nadu/explained-the-tamil-nadu-polices-kavalan-sos-app/article61634542.ece> last visited on 13/3/2024

<sup>20</sup> <https://indianexpress.com/article/cities/chennai/tamil-nadu-mk-stalin-mobile-app-for-police-to-apply-leave-7736229/> last visited on 12/3/2024

<sup>21</sup> <https://keralapolice.gov.in/page/mobile-apps> - last visited on 12/3/2024

<sup>22</sup> <https://www.thenewsminute.com/article/karnataka-budget-suraksha-app-entire-state-promote-women-s-safety-119599> last visited on 13/3/2024

<sup>23</sup> <https://www.thenewsminute.com/article/karnataka-state-police-app-launched-make-cops-more-accessible-citizens-83549> last visited on 13/3/2024

Delhi Police has launched “Tatpar” app in 2019, which contains all the important websites, helpline numbers and various emergency services. Citizens can also report of any suspicious activity near the vicinity.<sup>24</sup> In January 2022, Delhi police launched e-FIR app for registering theft cases.<sup>25</sup> “Himmat plus” app is used to alert the important contacts in case of physical violence. Similarly, Uttar Pradesh Government has launched “trinetra” app in 2018 with facial recognition technology to identify the criminal.<sup>26</sup>

## ISSUES AND CHALLENGES

While technology has proven to be a boon to the law enforcement agency, it has to be utilised in an efficient and correct way. Technology should be made available and accessible to every police throughout the country. Many Rural police are not equipped with the technology and not trained to use the technology in an efficient manner. There is a lack of technological resources for Indian police and there is hardly any capacity for technology management when the technology is procured and deployed. There is a lack of communication infrastructure in many states. More particularly it is reported in 2019 that, Manipur had 30 police stations without any wireless communication. Jharkhand has 22 such stations and Meghalaya had 18 of them.<sup>27</sup> It is important to note that there are police stations in this country even without telephone connectivity. As of 2023, 285 police stations across the country do not have telephone connectivity and 63 police station do not have vehicles.<sup>28</sup>

Though facial recognition technology has played an imperative role in crime investigations, misuse of the technology can lead to various fundamental rights violations.<sup>29</sup> National Automated Facial Recognition System stores sensitive data. India does not have a comprehensive law to regulate data protection as a result of which police is free to crack down any protest that leads to violation of freedom of speech and expression.<sup>30</sup> As a result of lack of regulation, right to privacy will also be violated. AI based FRT are proven to be biased in many instances as it does not recognise a particular skin tone or particular ethnic groups. US based researchers has reported that Indian FRT is identifying Indian men more accurately than that of Indian women.<sup>31</sup> It is reported in many instances that FRT has targeted minorities which led to violation of basic rights.<sup>32</sup>

ANPR technology works efficiently when there is a standardized number plate system. In India there is a variation in number plate which makes it difficult for ANPR technology to identify the number plates. The size, colour and fonts of number plate may vary. And also ANPR system in India uses a poor quality camera which do not capture the number plate accurately.<sup>33</sup> Many a times number plates are hand painted

<sup>24</sup> <https://ddnews.gov.in/national-people/delhi-police-launches-tatpar-app-citizens> last visited on 12/3/24

<sup>25</sup> <https://timesofindia.indiatimes.com/city/delhi/delhi-police-launches-e-fir-app-for-registering-theft-cases/articleshow/89141515.cms> last visited on 13/3/2024

<sup>26</sup> <https://www.financialexpress.com/industry/technology/up-police-launch-trinetra-its-ai-powered-face-recognition-app-to-catch-criminals/1426618/> last visited on 13/3/24

<sup>27</sup> <https://scroll.in/article/935008/why-indias-police-forces-lack-weapons-and-communications-equipment> last visited 14/3/24

<sup>28</sup> <https://www.thehindu.com/news/national/648-police-stations-lack-phone-link/article38409319.ece#:~:text=As%20many%20as%20648%20police,police%20stations%20without%20telephone%20connection>. Last visited on 15/3/2024

<sup>29</sup> About Face ID Advanced Technology' (Apple Support, 2021) <https://support.apple.com/en-in/HT208108>

<sup>30</sup> <https://www.fairplanet.org/editors-pick/facial-recognition-in-delhi-could-target-minorities/> last visited on 15/3/2024

<sup>31</sup> <https://scroll.in/magazine/1001836/facial-recognition-technology-isnt-wholly-accurate-at-reading-indian-faces-find-researchers> last visited on 15/3/2024

<sup>32</sup> <https://www.humanrightspulse.com/mastercontentblog/use-of-ai-and-facial-recognition-technology-in-policing-in-india> last visited on 15/3/2024

<sup>33</sup> <https://platercognizer.com/anpr-for-india/> last visited on 15/3/2024



which cannot be recognised by artificial intelligent to decode the numbers which in turn makes it very difficult for the police to track the vehicle.

Police in India can track cell phones and retrieve call records and trace the location of a device which is done by applying to the nodal officer.<sup>34</sup> While this has helped in solving plethora of cases the question here is security of such data. This violates a person's right to privacy which is guaranteed under article 21 of Indian Constitution<sup>3536</sup>. In 2018 Ministry of Home Affairs under cyber and information security division has issued an order as per which investigation agencies such as intelligence bureau, CBI, National Investigation Agency etc can scan, record and tract any data in a computer system. Any person who fails to co-operate may be imprisoned for a period of seven years. It is true that there is no express mentioning about cell phones in this order, if one interprets the term computer system it includes mobiles as well. This could lead to violation of individual's right to privacy.<sup>37</sup> Profiling by police could also lead to violation of right to privacy. India lacks data protection laws. Without a comprehensive law to protect data or an efficient framework to guide police to track, store and collect data, privacy right is just a fantasy.

There is lack of financial aid in police department. Although 1.17 lakh crore excess of budget has been allocated by Ministry of Home Affairs for fiscal year 2021-22<sup>38</sup>, it is still not sufficient to equip the police throughout the country with required technology.

Lack of expertise in police department is also a great drawback in utilising these technologies. Only 6.4 % of police personnel in India has received any kind of training in past 7 years.<sup>39</sup> Ministry of Home Affairs has set up an University for police training called Sardar Vallabai Patel National Police University Noida. But training facility is not available to police all over the country. There is a need for emergency police reform in this regard. Many police personnel fail to adopt to new technology due to lack of training.

With advanced technology comes great power, there should be some ethical restrictions on usage of these powerful technology. In India there is a lack of legislative framework to guide police personnel or restrict them in using technology. Data privacy laws are the need of the hour.

## CONCLUSION

Undoubtedly technology has helped a lot to shape policing in India. But with advanced technology there is an adverse effect which often goes unnoticed. A lot of the technology that was discussed in this paper such as FRT, CCTV surveillance, drones etc ultimately affects a person's right to privacy. Data of an individual is collected, stored and analysed by police which is an intrusion of privacy. Unreasonable intrusion leads to violation of a fundamental rights. These issues can be sorted out only if India comes up with a robust legal framework.

Training should be provided to police personnel on usage of technology. Without proper training, technology could be overwhelming for them. Although Indian police has separate cyber wings to tackle with cybercrime, only limited number of personnel are trained. Workshops and awareness programmes shall be conducted by the Government to keep them updated.

<sup>34</sup> <https://indianexpress.com/article/explained/does-tracking-mobile-location-breach-privacy-524> last visited on 12/3/2024.

<sup>35</sup> K.S.Puttaswamy v. Union Of India

<sup>36</sup> PUCL v. Union of India.

<sup>37</sup> <https://www.indiatimes.com/technology/news/indian-govt-can-now-track-monitor-data-on-your-computer-by-order-of-home-ministry-affairs-359025.html> last visited on 16/3/2024

<sup>38</sup> <https://indianexpress.com/article/business/budget/mha-budget-hiked-by-11-per-cent-lions-share-of-allocation-for-police-7752286/> last visited on 16/3/2024

<sup>39</sup> <https://theprint.in/opinion/indian-police-academies-need-an-upgrade-must-go-beyond-old-drill-based-training/333913/> last visited on 16/3/2024

Lack of funding is yet another major pit falls. Government should allocate sufficient funding to upgrade the existing technology and also improve the accessibility of technology throughout the country. It is highly shocking to know that 285 police stations across the Nation do not have a telephone connectivity and 63 police stations does not have vehicles as of 2023.<sup>40</sup> let alone any other technological support. Even with the existing technology, in many instances it has been noted that Government buys and installs low quality technology for cost cutting which highly defeats the purpose of such technology itself. For example, ANPR technology is used to track and identify a vehicle with its register number. But the cameras that is usually used in this technology is of very low quality and records blurry image which defeats the very purpose of the technology itself.

---

<sup>40</sup><https://theprint.in/india/indias-63-police-stations-dont-have-vehicle-285-dont-have-mobile-phones-govt/1442755/>  
visited 19/3/2024