Automated facial recognition system(AFRS)

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Manifest pedagogy

Policing and investigation can be made easy with the advent of technology. In that pursuit the AFRS system is a much needed adoption. The technology part is important for prelims and this step is important for mains to write as part of technology in governance and specifically in policing and speedy investigation

In news

- Recently NCRB released a Request for Proposal for an AFRS to be used by police officers across the country

Placing it in syllabus

- S&T developments and their applications

Static dimensions

- What is AFRS?

Current dimensions

- CCTNS
- Integration of AFRS with CCTNS and boost to police investigations
- Case study
- Concerns

Content

The AFRS, being implemented by the National Crime Records Bureau (NCRB), is a component of Crime and Criminal Tracking

Network and Systems (CCTNS), a national database of crimes and criminals. The AFRS would not violate privacy of citizens and is only being developed to help the law enforcement agencies to identify criminals, missing children and unidentified bodies in a scientific and speedy manner. The data will only be accessible to law enforcement agencies. The NCRB had recently invited bids for AFRS that would “capture face images from CCTV feed and generate alerts if a blacklist match is found,” triggering privacy concern.

What is AFRS

AFRS works by maintaining **a large database with photos and videos of peoples’ faces.** Then, a new image of an unidentified person, often taken from CCTV footage is compared to the existing database to find a match and identify the person. The artificial intelligence technology used for pattern-finding and matching is called “neural networks”. AFRS will be a mobile and web application hosted in NCRB’s Data Centre in Delhi, but will be used by all police stations in the country

NCRB has proposed integrating this facial recognition system with multiple existing databases. The most prominent is the NCRB-managed CCTNS. Facial recognition has been proposed in the CCTNS program since its origin

CCTNS

Crime and Criminal Tracking Network & Systems (CCTNS) is a Mission Mode Project under the National e-Governance Plan (NeGP) of Govt. of India. In 2009, following the Mumbai terror attacks, CCTNS was envisaged as a countrywide integrated database on crime incidents and suspects, connecting FIR registrations, investigations, and chargesheets of all 15,500 police stations and 6,000 higher offices. CCTNS aims at creating a comprehensive and integrated system for enhancing the efficiency and effectiveness of policing through adopting the principle of e-Governance and creation of a nationwide networking infrastructure for evolution of IT-enabled-state-of-the-art tracking system around ‘Investigation of crime and detection of criminals’

Ministry of Home Affairs (MHA) and NCRB play a key role in planning the program in collaboration with the Police leadership within States, in the development of a few core components and in monitoring and reviewing the program. The role of the Centre (MHA and NCRB) focuses primarily around planning, providing the Core Application Software (CAS) (to be configured, customized, enhanced and deployed in States). States would drive the implementation at the state level and would continue to own the system after deployment

At present, CCTNS is accessible to the CBI, Intelligence Bureau, National Investigation Agency, Enforcement Directorate and the Narcotics Control Bureau. In August 2018, the first phase of connecting the police stations was nearly complete. In the second phase, the Home Ministry proposed integrating the database with the fingerprint database of the Central Finger Print Bureau (CFPB). NCRB is currently rolling out the National Automated Fingerprint Identification System (NAFIS) and its integration with CCTNS

Integration of AFRS with CCTNS and boost to police investigations

Presently, police undertake manual search for matching photographs on CCTNS data base. According to official sources, at present, there are 7.71 lakh cases of missing persons in the CCTNS database that includes 98,000 children. Current facial recognition in India is done manually where fingerprints and iris scans provide far more accurate matching results. Automatic facial recognition will be an easier solution especially for identification amongst crowds.

AFRS will be used in respect of such persons who figure on the CCTNS data base – accused persons, prisoners, missing persons and unidentified found persons including children, and unidentified dead persons – and is not going to be used on any other data base. In case a person is suspected or arrested for crime during investigation, his photo can also be matched over the CCTNS data base for previous criminal records. This will ensure that criminals and terrorists will no longer be able to hide behind fake identities

It plays a very vital role in improving outcomes in the area of Criminal identification and verification by facilitating easy recording, analysis, retrieval and sharing of information between different organisations. It will also help in civilian verification when needed. No one will be able to get away with a fake ID.

The new facial recognition system will also be integrated with Integrated Criminal Justice System (ICJS), as well as state-specific systems, the Immigration, Visa and Foreigners Registration & Tracking (IVFRT), and the Koya Paya portal on missing children.

Evaluation- A case study

Academics at Cardiff University, UK conducted the first independent academic evaluation of Automated Facial Recognition (AFR) technology across a variety of major policing operations in Cardiff city over more than a year. The study found that while AFR can enable police to identify persons of interest and suspects where they would probably not otherwise have been able to do so, considerable investment and changes to police operating procedures are required to generate consistent results.

Researchers employed a number of research methods to systematically evaluate the use of AFR by police across multiple operational settings. The technology worked in two modes **Locate** is the live, real-time application that scans faces within CCTV feeds in an area. It searches for possible matches against a pre-selected database of facial images of individuals deemed to be persons of interest by the police.

Identify, on the other hand, takes still images of unidentified persons (usually captured via CCTV or mobile phone camera) and compares these against the police custody database in an effort to generate investigative leads. Over the period of the evaluation, the accuracy of the technology improved significantly and police got better at using it. The Locate system was able to correctly identify a person of interest around 76 percent of the time.

Concerns

- Cyber experts across the world have cautioned against government abuse of facial recognition technology, as it can be used as a tool of control and risks inaccurate results.
- An advocacy group Liberty, in UK, has denounced automatic facial recognition as "arsenic in the water supply of democracy" as it has the potential to abolish privacy in public places.
- The city of San Francisco has already barred the use of automatic facial recognition by law enforcement on similar grounds arguing that the use and spread of the technology is not inevitable.
- For the security forces in China, where such surveillance is already widely deployed, the arrest of innocents is a welcome collateral damage, thus spreading fear in the target populations.
- It is especially inaccurate and prone to bias when used against people of colour. E.g a recent test of Amazon's facial recognition software by the American Civil Liberties Union found that it falsely identified 28 members of Congressional Black Caucus as known

criminals.

As the technology is improving all the time and millions of people help to make it better, inaccuracy may not be a problem in the future. It must help to create a people-friendly policing and the law must ensure data is not stored and refined in ways that will harm the innocents.