2. Facial Recognition

Prelims Syllabus: Robotics & Artificial Intelligence

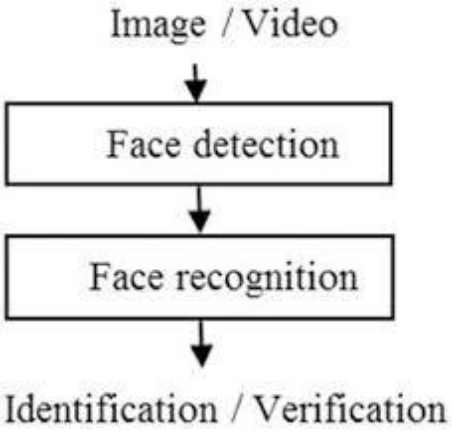
Mains Syllabus: GS-III Science and Technology - developments and their applications and effects in everyday life Achievements of Indians in science & technology; indigenization of technology and developing New Technology.

Context:

- In recent years, facial recognition has become a cause for concern in western democracies. The European Commission is considering imposing a five-year moratorium on the use of facial recognition technologies in the European Union (EU). Whereas, the United States (US), municipalities have are considering passing prohibitions, India, however, is rushing to adopt public facial recognition.

What is Facial Recognition, and how does it work?

- Facial recognition is a technology, based on artificial intelligence (AI), that leverages biometric data to identify a person based on their facial patterns.
- It can be used for the purposes of 'verification' and 'identification' of individuals.
- Facial recognition has evolved in many ways, from the first cameras that could recognise faces in the mid-1960s up to now.
- It has evolved from looking at 3D contours of a face to recognising even the skin patterns.
- Facial recognition systems analyze the visual data and millions of images and videos created by high-quality Closed-Circuit Television (CCTV) cameras installed in our cities for security, smartphones, social media, and other online activity.
- Machine learning and artificial intelligence capabilities in the software map the distinctive facial features mathematically, look for patterns in the visual data, and compare new images and videos to other data stored in facial recognition databases to determine identity.
- Market research experts believe that the facial recognition market will grow to $9.6 billion by 2022.



What are the uses of Facial Recognition Technology?

- Today, it's used in a variety of ways from allowing you to unlock your phone, go through security at the airport, purchase products at stores etc,.

- One of the major advantages of facial recognition technology is safety and security.
- Law enforcement agencies use the technology to uncover criminals or to find missing children or seniors.
- Airports are increasingly adding facial recognition technology to security checkpoints.
- It can play a critical role in finding missing children, preventing human trafficking, and curbing crime. Experts believe that when people know they are being watched, they are less likely to commit crimes so the possibility of facial recognition technology being used could deter crime.

Where do we find Such Technology in India?

- Facial recognition systems have been active at several major Indian airports, including the Delhi airport.
- These systems at airports have been installed under the DigiYatra initiative.
- Telangana's election commission piloted a facial recognition app in its local elections, and claimed that it could address the issue of voter impersonation.
- In the long-term, India plans to build a nation-wide Automated Facial Recognition System (AFRS) under the National Crime Records Bureau (NCRB), to modernize the process for criminal identification and verification by various police organizations across the country.

What are the Issues Associated with the Technology?

- **The accuracy of the facial recognition software is questionable.**
  - ✓ For instance, the Delhi Police applied the facial recognition technology to find missing children, the success rate was less than 1 percent.
  - ✓ In some cases, the technology could not even differentiate between genders.
- The technology suffers from ethnic and racial biases globally.
- The technology propagates, open collection of private data without putting in place adequate safeguards for individual privacy.
  - ✓ As a consequence, it infringes upon an individual's Fundamental Rights.
- There is a possibility that the technology could be used for mass surveillance.
- There's no sufficient information regarding the type of security that would be employed to ensure the integrity of the repository of the database such that it is not privatized or monetized.
- The level of reliability or admissibility standards that would apply to such data being presented as evidence during legal proceedings cannot be determined.

Finding the Balance:

- The current application of facial recognition for public services does raise reasonable questions and concerns about privacy and rights.
- However, given this technology's potential to solve problems, if applied properly in specific cases and contexts and with proper regulatory mechanisms, it could be leveraged in a beneficial manner.