FACIAL RECOGNITION IS HERE!
EXPERTS SAY IT IS JUST THE BEGINNING.

With infrared and 3D sensors within the front-facing camera, the face scan unlocks almost instantaneously and require no buttons to be pressed, being always “on” and ready to read the face. Users will soon use face recognition to check their email, send a text, or make a call; it will be quick, easy to use. It is fast and accurate but poses serious privacy risks.

Face recognition is already used around the world to examine, investigate, and monitor. In China, police use face recognition to identify and publicly shame people for the crime of jaywalking. In Russia, face recognition has been used to identify anti-corruption protesters, exposing them to intimidation or worse. In the UK, face recognition was used at an annual West Indian cultural festival to identify revelers in real-time. In the United States, more than half of the adults are in a face recognition database that can be used for criminal investigations, simply because they have a driver’s license.

Governments are not the only users of face recognition; the technology is finding use in all verticals.

By a&sINDIA Team
Evolution of the Facial Recognition Solutions Market in India:
According to Yogesh B. Dutta, COO, CP Plus, “Facial recognition is redefining surveillance technology. Hence, solution providers investing in face recognition today will undoubtedly lead the way. The human face has become a new way of authentication and recognition, and has presented immense potential in both non-law and law enforcement applications. While biometric authentication systems (fingerprint and iris) have been around for a while, facial recognition offers a distinct advantage because it requires no contact. Face recognition has evolved significantly and is now being used in a range of technologies such as CCTV Cameras, Smartphones, T&A Systems, Laptops, etc. for authentication, monitoring management, automation and security.”

According to Nilmani Kumar, Product Manager, Prama Hikvision India Pvt. Ltd., “After the huge success of fingerprint technology for user authentication, facial recognition is the latest technology of authentication. If we talk about corporate sector, then fingerprint authentication technology is serving its purpose, but it faces some challenges in extreme weather condition i.e; mines, factories where worker’s finger patterns are not recognizable. Hence facial recognition technology helps to identify the authorized people. Indian market is also adapting to this new technology gradually. The facial recognition technology is now a first preference in the segments where the work conditions are very rough.”

According to Advocate Puneet Bhasin, Cyber Law Expert, Cyberjure Legal Consulting, “Facial recognition is growing at very fast pace with product and service providers introducing offers but the market in India is still nascent as users have still not adopted it on a large scale. Also, there are certain issues that exist from a law enforcement perspective in cell phones or other devices having access through facial recognition. For example, if a person is a victim of a crime and loses his life as a consequence of it, the Police normally would use the cell phone for identification and investigation, but if there is access to phone controlled by facial recognition, then the police would face difficulty in evidence collection.”

According to Arun Khazanchi, CEO, Videonetics, “Facial Recognition Software has gone from being a mere name sake to software now extensively used in the Security and Surveillance markets in India. It is being developed proactively to suit its application in government, retail and hospitality, medical, commercial and banking sectors. Facial Recognition Software is being used to collect data for product surveys and visitor patterns in various malls, showrooms and retail shops. It is being used to refine search engine results and in photo-tagging applications including face count and facial interaction (face presence and frequency) with messages. Applications like emotion recognition and detection that remain unaffected by changes in facial features (moustache, beard and hairline) and expressions are being developed. Open platform makes the solutions easily feasible with existing surveillance systems.”

According to Jatin Desai, Product Manager- Access Control and Time-Attendance, Matrix Comsec Pvt. Ltd, “Innovations in electronic security are improving reliability and speed of identification. New technologies like palm vein readers, fingerprint and face recognition are widely used and are increasingly improving.

In this era, where all aspects of life are technology enabled and technology driven, security and safety are the most fundamental motivators and therefore of prime importance. Face Recognition solutions in India is in its nascent stage of development. Facial Recognition requires no physical interaction. It allows high enrollment and gives accurate verification. The facial recognition market is expected to gain from several new trends, including the shift from 2D to 3D recognition, facial analytics, advancements such as cloud-based services, application in mobile security, and integration of facial recognition with smart cards.”

According to Ashwin Amarapur, Director & CEO, AllGoVision Technologies Pvt Ltd, “India, with the second largest population in the world has attracted the investment from many global companies. The infrastructure in India has also grown significantly and the latest technology is being utilized to enhance the infrastructure. Enhancement of the security and access control is a major concern for both the private and the government sector and Facial Recognition plays a major role for that. With the use of Biometric based security solutions, an effective facial recognition solution can provide a centralised method to track
blacklisted/whitelisted people across the different states of India and can hunt down the major problems like terrorism, human - kidnapping, searching missing people, theft, etc."

Latest Facial Recognition Solutions Available in India:
Yogesh B.Dutta, COO, CP Plus said, “Over the past few years, the development of face recognition solutions has largely been within the framework of biometrics security systems. However, it is now finding application in a host of other technologies as well. Facial recognition technology can be implemented as a functionally independent application, or can be seamlessly integrated into existing or new biometrics security solutions by solution providers and system integrators.”

“Earlier Face Recognition Solutions had a lot of drawbacks, but it has improved considerably in recent times. Now a lot of organisations are using this technology for physical security as well as for marking attendance of their employees. Earlier devices were not convenient to use, user has to adjust their face as per camera, but now some products have motorised camera so devices adjust their own camera as per users’ height and face. Currently a lot of Facial recognition devices are available in market which is mainly used for attendance marking, but proxy attendance is still a big challenge in front of this technology.” said Nilmani Kumar.

“Facial recognition technology in itself is a solution to the modern security concerns. Every face has at least eighty distinguishable parts called nodal points. These are considered by measuring distance between two facial parts. The facial recognition concept has been derived from convolutional neural network. 3D Facial recognition is the latest trend in facial recognition solutions. It goes through series of steps to verify the identity of the user and provides more accurate results.” explained Jatin Desai.

According to Ashwin Amarapur, “With the emergence of Video Analytics in the past few years, Video based Facial Recognition that utilises Artificial Intelligence in the form of Deep Learning algorithms is a highly efficient solution that offers enhanced accuracy in Facial Detection and Recognition. The use of Deep Learning for Facial Recognition brings it much closer to human perception. Layered filters take into account the minutest details of faces and thus the parameters considered for matching faces are greatly increased in number, thereby increasing the level of accuracy. Camouflaged faces, fugitives, criminals, etc. can be easily identified and the limitations in the earlier technologies can be removed to have a much-advanced technology.”

Applications of the Current Face Recognition Technology:
“The scope of applications for facial recognition is immense. For instance, it is being used in retail to prevent workplace violence and organized crime; in law enforcements for instant identity verification; in banking and financial institutions for better security; in airports; in the military to safeguard sensitive areas, troop and bases; locate missing people; secure stadiums, hospitals, casinos, jails and correction centers.” mentioned Yogesh B.Dutta.

According to Nilmani Kumar, “Facial Recognition technology is mainly used for authentication of a user. Lately we have experienced this technology in a lot of mobile phones for unlocking the mobiles and applications. The facial recognition devices are very useful for identifying people whose fingerprints are not device readable. The Facial recognition technology used for entrance and exit control – both externally and internally – ensures that only authorised individuals are granted access to the facility.”

Adv Bhasin addressed on the legal issues in usage of applications of the current face recognition technology, “Facial recognition technology comes with its set of legal issues especially in scenarios of authorised people failing to access the devices due to failure in facial recognition softwares along with cyber security issues of such softwares being susceptible to hacking and unauthorised access. Also, iris recognition technology would be more accurate as compared to general facial recognition due to accidents or incidents that can cause deformation and render the owners of devices unable to access their own devices.”

She continued, “Privacy issues are of great concern. Recognising a person’s face requires building a faceprint to compare it to, akin to collecting a person’s fingerprint for future reference. This counts as collecting biometric information, which requires notice and consent for every usage of the same. In India the Intermediary Guidelines regulate usage of Biometric information and under the Information Technology Act if the Service provider or Company fails to protect the biometric information/sensitive personal data or as in this case the faceprint then they are liable under Section 43A to pay compensation upto Rs.5 Crores per instance of such lapse.”

Arun Khazanchi said, “With the increasing number of instances of terrorist attacks and every day violence, it has become crucial to effectively implement Facial Recognition Software. It is designed to support the biometric identification, comparison and verification of any person, thus recognizing enlisted criminals, repeated offenders and prevent crimes by helping the authorities efficiently remove the threats. Crimes related to impersonation that frequently occur in banking, commercial and hospitality sectors can be duly averted. Features like Emotion recognition can help in conducting surveys about product
response, movement tracking through aisles. Blacklisted criminals can be detected, marked and tracked in crowded places (eg. marketplace, malls, roads, event, and gatherings) and removed to prevent potential threats.”

According to Jatin Desai, “Facial Recognition systems are commonly used for security purposes, but are increasingly being used for a variety of other applications. Facial Recognition is used at ATMs, online payments, law enforcement, social media and more. Facial Recognition has started to make its mark in the wireless world of mobility. It is being successfully used on Smartphones to unlock specific mobile software applications.”

According to Ashwin Amarapur, “The Facial Recognition can be used for the detection and capture of Human Faces(for record keeping), appearing in restricted areas, which can further be utilized for post-event analysis. The Facial Recognition solutions can also be used for the generation of Black List Alarms – which assist in the identification of miscreants appearing in the surveillance cameras. Similarly, White List

“Features like Emotion recognition can help in conducting surveys about product response, movement tracking through aisles. Blacklisted criminals can be detected, marked and tracked in crowded places and removed to prevent potential threats.

Arun Khazanchi
CEO, Videonetics
Identification is another application of Facial Recognition as it can be used for Authentication, Attendance and Access Control. Face Forensic Search can also be done for detecting closest matches for suspect images.”

**Facial Recognition Technology and Solutions Provided and the Verticals Benefitted:**

Yogesh Dutta explained, “CP Plus provides facial recognition technology in CCTV cameras, Time & Attendance Machines and also as a standalone software solution. Facial Recognition as a technology can benefit almost any vertical because of its unique advantage of detecting without requiring physical contact. Most benefitted verticals are the police department for identifying and nabbing criminals; schools for monitoring and tracking students and staff, and highly sensitive areas such as airports and corporate houses, and malls. However, it can be used in various other applications as well.”

According to Nilmani Kumar “Hikvision has recently launched its Deep Learning technology, which will be the key milestone for the industry in coming years. Also, in Access Control, Hikvision is coming up with very unique Facial Recognition devices, which will have 4 layer authentication and one of the best security features.”

Adv. Bhasin informed, “Facial Recognition Technology and Solution provider companies need to have well drafted Privacy policies which clearly outline how the faceprint is being stored and standard of encryption adopted along with the details of third parties with whom this data may be shared and the applications of the face print by the service provider and the third parties. We are the only Company in India who provide Information Technology Law Compliance Audits and Privacy Law Compliance Audits, and these audits along with GAP analysis which enable the Companies to reduce risk of Cybercrimes and data theft and defend themselves in the case of Unauthorised access of face prints in a Court of law by having reasonable security practice. We also provide Cyber Disaster Management and Cyber Disaster Policy formulation which encompasses a complete assessment of a company’s cyber risk and then a step wise policy to follow in the case a Cyber Crime or Data theft or Hack occurs and includes steps in containing the evidence, handling forensic evidence, public announcement and also handling media to name a few. We are on retainer with Companies where we commit to being there at any point of time when a Cybercrime occurs in the Company and handling the situation in the most professional manner.”

“Videonetics Face Detection and Recognition solutions utilise a powerful and least invasive identification technology that delivers exceptional results for improved security for various applications.

State-of-the-art Face Detection & Recognition Algorithm is integrated into the visual computing platform for remarkable results and a trustworthy dependency for mission critical applications. This technology is unique and is integrated with our VMS and Video Analytics Suite. Faces of people in the scene are automatically detected and captured in a face log and can be searched based on the timestamp for future investigation. They can also be matched with a pre-defined face database in order to automatically generate an alert in case of a close match.

Aviation, Transportation, Retail and Commercial sectors are few verticals which have incorporated Face Recognition Software. Our software has been deployed in securing airports, docks, public places, and other restricted areas.

Videonetics Face Detection & Recognition software is powered by Cognitec – a world leading FRS technology provider. Through this partnership Videonetics has integrated Cognitec’s FaceVACS-VideoScan facial recognition technology into its Intelligent Video Management Software Platform to meet the growing demand of such solutions from various customer segments such as law enforcement, aviation, critical infrastructure and retail, etc,” said Arun Amarapur.

“Matrix has revolutionised authentication with the launch of Facial Recognition.

With contactless authentication, Matrix COSEC Facial Recognition technology reads user face through Mobile, Tablet or IP Camera. It ensures contactless authentication and identifies user’s face in <1 Sec.”

Jatin Desai
Product Manager- Access Control and Time-Attendance, Matrix Comsec Pvt. Ltd."
Matrix, a world-class manufacturer of Telecom and Security solutions, recently unveiled its indigenously designed COSEC Facial Recognition. Matrix COSEC Face Recognition is based on innovative, deep learning technology, which evolves as per regular user interaction in different conditions and identifies a user quickly and accurately with 1:1 and 1:N identification method. The technology checks liveness of face with 99.53% accuracy. It accepts the user’s mobile as a credential, which eliminates hardware cost and makes the verification process simple and secure. With contactless authentication, Matrix COSEC Facial Recognition technology reads user face through Mobile, Tablet or IP Camera. It ensures contactless authentication and identifies user’s face in <1 Sec. “ mentioned Jatin Desai.

“AlgoVision’s Facial Recognition solution offers best in class accuracy using state-of-the-art AI technology. With the use of Deep Learning, the solution has been optimised for better performance in field conditions and overcoming the challenges of sub-optimal lighting, unsuitable camera angles, and poor image quality. The solution has even been optimised for speed and low system cost. AlgoVision provides fast searches of faces for a database of up to 10 million faces. AlgoVision also offers age group and gender detection. Deep learning models of AlgoVision are created using variety of data. Fine tuning is done using data collected from customer sites in order to improve site specific performance significantly, especially false alarms. AlgoVision combines low-complexity analytics with AI judiciously to achieve maximum performance per watt. AlgoVision’s Facial Recognition solution has been utilized globally across different business verticals like: City Surveillance, Transport (Airports), BFSI, Oil & Gas, Healthcare, Critical Infrastructure, IT/ITES, etc.”

White List Identification is another application of Facial Recognition as it can be used for Authentication, Attendance and Access Control. Face Forensic Search can also be done for detecting closest matches for suspect images.

Ashwin Amarapur
Director & CEO,
AlgoVision Technologies Pvt Ltd.