



Aadhaar Touching Lives With Face Authentication

Innovation (Centre)

Unique Identification Authority of India (UIDAI) carries out around 8 crore Aadhaar authentication transactions on a daily basis using various modalities like biometrics (fingerprint and iris), OTP and demographics. During the Aadhaar enrolment process, the identity information of the resident i.e. demographic information (name, address, gender and date of birth; mobile number and e-mail) and biometric information (face, fingerprint and iris) are captured.

UIDAI has launched an in-house innovative initiative using Artificial Intelligence (AI)/ Machine Learning (ML) based Face Authentication Solution. UIDAI has developed a robust Artificial Intelligence-Machine Learning (AI-ML) based Face Authentication functionality, wherein a resident can perform Aadhaar authentication using 'Face' as a biometric modality.

The COVID-19 pandemic brought forth an alarming issue with systems that require





physical contact. A need was felt for a touchless biometric authentication which gained impetus resulting in the development of an in-house face authentication technology.

Face Authentication is a “Consent Based” authentication process to verify an Aadhaar number holder’s identity. A successful Face Authentication confirms that the physical face which is being scanned for verification matches with the one which was captured at the time of enrollment.

It was launched after an extensive proof of concept (POC) study with National Health Authority (Co-WIN application), the National Informatics Centre (Jeevan Pramaan), and a few banks involving residents in various population groups of different age groups, gender and geographic regions. Encouraged by the successful results and after a comprehensive analysis of the technology, it was enabled across the entire

Aadhaar ecosystem. The advantages of face authentication technology are:

- (a) versatile and secure
- (b) an edge over other modalities
- (c) captures live image only-will not work with still photographs
- (d) secure against video replay attacks-Deepfakes masked and spoofed videos
- (e) secure against masked images
- (f) continuously improved with current version (0.7.39) of Face Auth Application
- (g) complies with stringent Vulnerability Assessment and Penetration Testing (VAPT) and Audits being carried out regularly
- (h) compatible with all kinds of Android phones
- (i) inbuilt security features
- (j) easily intractable with Authentication User Agency (AUA) application
- (k) enables a live-ness check on the edge
- (l) end-to-end encryption
- (m) enables device-level registration
- (n) provides better authentication success

Impact

- The biometric face authentication helps pensioners to obtain Jeevan Pramaan Digital Life Certificate from their homes without visiting the Bank.
- NHA integrated the Face authentication in Co-WIN application for registration purposes and for registration of beneficiaries under PM-JAY (Pradhan Mantri Jan Arogya Yojana).
- Banks have also adopted the Face authentication functionality for providing banking services such as bank account opening to their customers.
- NIC has developed the Face authentication application for marking the attendance of employees through AeBAS (Aadhaar-enabled Biometric Attendance System) in Central Ministries and State Departments.
- Face Authentication is currently used by 26 entities across the country, mainly engaged in the disbursement of Direct Benefit Transfers (DBT) to the beneficiaries of the central government and state government schemes.