NPCI
भारतीय राष्ट्रीय भुगतान निगम
NATIONAL PAYMENTS CORPORATION OF INDIA
ALWAYS FORWARD

The inclusive payment system for Indian citizens based on Aadhaar authentication

Aadhaar Enabled Payment System (AePS)

AePS
AADHAAR ENABLED PAYMENT SYSTEM



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1. Background

A foundation to deliver convenience of formal banking transactions to every Indian citizen.

India began a journey towards a unified identity system for its citizens under the Unique Identification Authority of India (UIDAI). The UID number or 'Aadhaar' provided a portable proof of identity that could be verified through authentication, anytime, anywhere, and is being used to ensure that residents can have targeted delivery of financial and other subsidies, benefits and services, wherever they are across the country.

To further fast-track financial inclusion in the country, two working groups were constituted by RBI on Micro ATM standards and Central Infrastructure and Connectivity for Aadhaar based financial inclusion transactions. The Micro ATM standards allowed for the financial transactions using aadhaar authentication, while adhering to the encryption and security standards of the Aadhaar ecosystem.

Aadhaar authentication is designed to make life simpler for Indians as it is meant to be a convenient system to prove one's identity without having to provide identity proof documents whenever a resident seeks a service. Aadhaar authentication is the process wherein, Aadhaar number along with the Aadhaar holder's personal identity data such as biometric/demographic information is submitted to UIDAI (Central Identities Data Repository - CIDR) for matching, following which the UIDAI verifies it basis a match with the Aadhaar holder's information. UIDAI confirms either proof of identity or verifies the information provided by the resident based on the data available at the time of authentication. Aadhaar authentication service, in this scenario, responds only with a "Yes / No".

In order to facilitate the financial inclusion objectives of the Government of India leveraging Aadhaar authentication through the AePS touchpoint operating channel, NPCI has developed the Aadhaar enabled Payment System (AePS).

The Aadhaar authentication system supports the following authentication types:

- Biometric Matching - a. Finger Print authentication b. IRIS authentication c. Face authentication
- Demographic matching
- Additional features such as One-Time-Password (OTP)

2. Introduction

Introduction to the NPCI AePS solution

The Aadhaar Enabled Payment System (AePS) is a bank-led model developed by NPCI, which allows online transactions at Micro ATM/Kiosk/mobile devices through the authorized AePS Touchpoint Operator (ATO) of any bank using Aadhaar authentication. This solution has been designed by NPCI to handle various kinds of service requests effectively by enabling an authentication gateway for all Aadhaar linked account holders.

Any resident of India having an Aadhaar number linked to a bank account - referred to as an Aadhaar Enabled Bank Account (AEBA) - can utilise the AePS service.

Bank customers with an Aadhaar enabled bank account can use the AePS solution for banking transactions as listed below:

- ✓ Balance Enquiry
- ✓ Cash Withdrawal
- ✓ Cash Deposit
- ✓ Aadhaar to Aadhaar Fund Transfer
- ✓ Mini Statement
- ✓ BHIM Aadhaar Pay (Purchase)
- ✓ Self-Help Group (SHG) Transaction

What a customer requires to do an AePS transaction

- ✓ Aadhaar Number/Virtual ID
- ✓ Bank Name/IIN
- ✓ Biometric captured during their enrollment
- ✓ Transaction Type (If needed)

The NPCI AePS solution can be accessed at any biometric-enabled touch-point via Micro ATMs, which may be all-in-one integrated devices, or mobiles /PCs/tablets, with accessories that meet technical specifications defined by UIDAI.

AePS also enables Aadhaar seeding status check for Direct Benefit Transfer beneficiaries to receive DBT, Social Security Pension or government subsidies.

NPCI has designed AePS to be accessible and flexible.

AePS enables easy online transactions through multiple authorized channels, to improve accessibility to underserved:

1) Through a bank's Business Correspondent:
Business Correspondents are entities authorized (by banks) who represent the bank and who have Micro ATM devices to facilitate customer transactions.

2) 'BHIM Aadhaar Pay' at merchant locations:
A purchase transaction under AePS where any merchants can accept payments using Aadhaar number/VID and biometrics of the customer.

Aadhaar Authentication

In any Aadhaar enabled financial transaction, a customer is required to provide personal Aadhaar number/ Virtual ID and biometrics on the Micro ATM managed by a ATO (AePS Touchpoint Operator) to prove identity and get authenticated by the UIDAI. A transaction will be sent to the authorized bank (whether intra or inter-bank) when the Aadhaar authentication is successful.

Aadhaar enabled inter-bank transactions

In the case of inter-bank transactions, requests will be initiated from the ATO(AePS touchpoint Operator) terminal, and the issuer bank will get a request with authentication confirmation, once the customer's Aadhaar/VID has been authenticated with UIDAI. In the case of interbank transactions, the customer has to provide Aadhaar number/Virtual ID, Issuer bank name (IIN), Type of transaction, value (if it is a financial transaction) and biometric authentication.



3. Business Uses

Business uses of the AePS service

1) Allows bank customers to use Aadhaar number/Virtual Identity to access their Aadhaar enabled bank account and make basic banking transactions.

2) Facilitates interoperability across Banks/Entities in a safe and secure manner.

3) Enables eKYC Services[1]

a. A resident of India can open a bank account with any bank, any location using Aadhaar as a Proof of Identity and Proof of Address.

b. AePS provides a real-time electronic KYC platform to all Banks/non-bank entities in India which can help them in meeting their customer KYC needs.

c. Provides a cost-effective, safe, and secure means of paperless KYC to all Banks/non-bank entities in India which may save a lot of cost and effort related to storing physical KYC proofs.

4) Facilitates merchant transactions by allowing the merchant to accept the Aadhaar number/Virtual ID and biometrics of the customer for the purchase of goods and services through Aadhaar based biometric authentication.



4. Business Benefits

NPCI AePS solution benefits India at many levels

The AePS service developed by NPCI fulfills a wide range of objectives for all who participate within its banking and financial system.

For the Government & Regulators: It fulfills the objective of furthering financial inclusion across India and generate alternative livelihood options of being a AePS Touchpoint Operator. It furthers the goal towards cashless transactions with digitization of retail payments and establishing an acceptance infrastructure, through BHIM Aadhaar Pay.
For banks: It enables smooth interoperability among banks and makes paperless KYC quick and easy. This saves time and money, in addition to addressing the customers across length ad breath of the country, even where bank branches are not present. It also reduces the need to create costly brick and mortar branches.

For a customer: It allows the customer to have doorstep banking and do basic banking transactions without the need to visit any bank branch, carry cards or remember PIN/passwords. Further, being an assisted mode transaction, the channel is truly inclusive for all customers.

For merchants: It allows merchants to accept digital payments in a cost effective and inclusive way.

5. Participants

Who can participate in AePS?

Customers:
Customers need to have a valid Aadhaar number through which they can set up an Aadhaar enabled bank account with an authorized bank and enjoy the AePS service suite.

Merchants:
Merchants will need to apply to an authorized bank to participate in the AePS network and receive payments for goods and services delivered from customers within this system.

Bank:
Banks will need to apply to NPCI / UIDAI and base the established vetting and application process, can be permitted to deliver services through AePS.

Regulated Entities & Government Departments
Regulated Entities & Government Departments will need to apply to NPCI / UIDAI and basis the established vetting and application process, can be permitted to onbaord on eKYC services.

6. Use Cases

How to use AePS services?
AePS is designed to seamlessly handle both intra and interbank transactions (On-us/Off-us) requests by enabling an authentication gateway for all Aadhaar linked account holders. Customers can therefore utilize the AePS service in the following ways:

1) Remote banking service access

Madhavan lives in a remote village, which is 2 hours' travel from the nearest physical bank branch. He regularly makes cash payments for his family's needs. However, he is not able to visit the local bank branch to withdraw cash often or check his balance. Now, he can do all his basic banking through the AePS service, in assisted mode, provided by the authorized AePS Touch point Operator in his village using his Aadhaar details.

2) Money transfer to remote location

Migrant worker Ram who works in a major city and needs to send money back home to his family in a remote village. He can transfer the money to his family by providing his Aadhaar number/Virtual ID, Type of transaction, Value (of financial transaction), and biometric details along with his mother's Aadhaar Number.

3) Balance enquiry in remote locations

Hemlata runs a small village handicrafts sourcing business where she buys items from many women's groups around the country that have different bank accounts than her own. As she often travelling from village to village and doesn't always have access to her home bank branch account, she uses the Aadhaar enabled service wherever she can make a Balance Enquiry, so that she is aware of her receipts and expenditure as she travels.

4) Cash withdrawal through AePS Touchpoint Operator

Sarvani is a bright young medical student studying far from her hometown. While she has a scholarship and other education fees already paid in full, she urgently required cash for some unexpected living expenses. Using the Micro ATM operated by a AePS Touchpoint Operator, she receives the cash from the ATO. Her account is debited using the cash withdrawal service of AePS while withdrawing cash.

5) Cash Deposit using AePS Touchpoint Operator Micro ATM

Lakhan is a mid-sized orange farmer. During harvest season, when he gets cash from selling his produce, he deposits the money in his own Aadhaar enabled account using the local AePS Touchpoint Operator Micro ATM at the mandi instead of spending his time travelling to his local bank branch in another town.

6) Aadhaar to Aadhaar fund transfer

Thomas is a metal-works supervisor whose job is in the vicinity of a small city. Every fortnight, Thomas sends money using a ATO-operated Micro ATM near his place of work to his parents' Aadhaar enabled account in his hometown location.

7) Tracking transactions with a Mini Statement

Nowroj has a bakery for bread and biscuits near a major Tier 2 city. He doesn't yet have a smartphone to check the transactions. Instead of going to a bank in that city, to check on his transaction history, he simply uses a nearby ATO to know his last few transactions using a mini statement request.

8) Cashless merchant payments with BHIM Aadhaar Pay

Altaf runs a small kirana shop. He can use the purchase function of BHIM Aadhaar Pay to receive payments from his customers and not worry about change or keeping cash in his shop. His customers are also happy as the transaction is quick and they don't have to worry about notes acceptance and exact change. Altaf appreciates the convenience of the BHIM Aadhaar Pay (purchase) transaction.

9) Self Help Group (SHG) banking

Laxmibai leads a condiment packing self-help group of 12 women members from her village. The SHG often needs to pay vendors for the raw materials used in their products, share profits with members and also check on payments from buyers in the SHG bank account. Normally, she would need to take a bus, and travel with a co-member from her SHG, to make these transactions at a nearby local bank branch. However, since SHG appointed her and the other member as authorized signatories for the account, they can now use the dual authentication services offered under AePS, from their village itself. This helps her save valuable time and the cost of travel to a bank branch in a nearby town.

7. Acts

1) Aadhaar Act 2016: An Act to provide for, as good governance, efficient, transparent, and targeted delivery of subsidies, benefits and services, the expenditure for which is incurred from the Consolidated Fund of India to individuals residing in India through assigning of unique identity numbers to such individuals and for matters connected therewith or incidental thereto.

2) Section 7 of the Aadhaar Act 2016 (Targeted Delivery of Financial and other Subsidies, Benefits and Services) outlines that welfare schemes funded from the consolidated fund of India shall be availed using Authentication (Aadhaar shall be used as the mode of Authentication) in such a manner so as the benefits reach the deserving and is not siphoned away by middlemen. Provided that if an Aadhaar number is not assigned to an individual, the individual shall be offered alternate and viable means of identification for delivery of the subsidy, benefit or service.