
Smart Expense Categorization and Insights Engine

The Problem

Modern financial life is fragmented. Users' transactional data is scattered across SMS, UPI apps, and various bank portals, making it impossible to get a unified view of their spending. This data fragmentation, combined with the manual effort needed to classify transactions, leads to poor financial tracking, unmanaged bills, and a general lack of financial awareness.

The Project

We are building a system that automatically classifies expenses from SMS, UPI, or bank messages. It visualizes spending patterns to provide users with better financial awareness and AI-powered insights.

Industry Domain

The project operates within the Indian Fintech market. It specifically targets the explosive growth of retail digital payments, which is dominated by the Unified Payments Interface (UPI). This market includes over 850 million smartphone users in India who are generating over 12 billion UPI transactions per month.

Solution provided

The solution is an AI-powered system that captures and processes transaction notifications (SMS, UPI) in real-time. A categorization model tags the extracted data, which is then stored in Firestore. An Insights Engine updates a visual dashboard and triggers smart alerts for the user.

Key features include:

- **Smart Expense Management:** Automatic categorization of all expenses, plus detection of recurring subscriptions and pending payments.
- **AI-Powered Insights:** Proactive fraud/anomaly detection, smart spending limit alerts, and income tracking.
- **Predictive Analysis:** Forecasting upcoming bills and monthly cash flow.
- **AI Financial Assistant:** A chat-style agent to answer user queries.

Current status

The project is currently in the prototype development phase.

- The backend server, including the core machine learning model for categorization, is 100% complete and operational.
- The Android application (the front-end) is approximately 50% complete.

Future plans and relevance

Our immediate plan is to complete the remaining 50% of the Android application and launch a closed beta test to gather user feedback. Following the initial launch, our long-term strategy focuses on deep integration, strategic partnerships, and platform expansion.

- **Target Market:**

The primary market is "Digital Strivers" (Millennials & Gen Z), supplemented by "Independent Hustlers" (Freelancers) and "New Digital Citizens" (Tier-2/3).

- **Competitive Differentiators:**

Our product offers a holistic view of all transactions (unlike CRED), is simpler and more focused than investment apps (like ET Money), and provides far superior analytics and security than bank-provided apps.

- **Future Plans:**

1. **Integrate with Account Aggregator (AA) Framework:** Our top technical priority is to integrate with India's Open Banking/AA framework. This will allow us to move beyond SMS parsing for a more secure, reliable, and direct connection to bank data (with user consent).
2. **Develop B2B2C Partnerships:** We will actively pursue partnerships with neo-banks and smaller cooperative banks to offer our technology as their official, white-label Personal Financial Management (PFM) solution.
3. **Expand to iOS:** After establishing a stable Android user base, we will develop and launch an iOS version to capture the full smartphone market.
4. **Ethical Data Monetization:** We will explore opportunities to provide anonymized, aggregated spending data as a source of valuable

economic insights, strictly adhering to ethical and privacy-first principles.

Business Model

Our business model is a hybrid, designed to build a large user base while creating multiple revenue streams:

Freemium Model (B2C):

- **Free Tier:** Offers core functionalities like automatic expense categorization, SMS parsing, and the main dashboard. This will drive user adoption and build a large community.
- **Premium Tier:** A monthly/annual subscription that unlocks advanced features, such as:
 - Proactive Fraud & Anomaly Detection
 - AI-Powered Financial Assistant
 - Cash Flow & Bill Prediction
 - Unlimited data history and advanced analytics

B2B2C Licensing:

As outlined in our future plans, we will partner with co-operative banks and neo-banks. These institutions can embed our technology as a white-label Personal Financial Management (PFM) solution into their own banking apps, paying us a licensing fee per user.

Ethical Data Monetization (Long-term):

We will explore opportunities to provide fully anonymized, aggregated spending data as a source of valuable economic insights for market research firms. This will be strictly opt-in and adhere to all privacy regulations.

Top 3 risks and its mitigation plan

1. Dependency on SMS Formats.

Banks frequently change SMS formats, which can break data extraction.

Mitigation Plan: We will build a flexible parsing engine that can be quickly updated. We will also use community-sourcing (from users) to flag new or broken formats, allowing for rapid patches.

2. User Trust Hurdle.

New users may be hesitant to grant access to read their financial messages.

Mitigation Plan: Prioritize security and transparency. All processing will be done on-device. We will have a clear privacy policy and use-case explanation during user onboarding, and seek 'data-minimal' permissions.

3. Competition from Major Players.

A large player like Google (GPay) or PhonePe could build these features natively.

Mitigation Plan: Our strength is our agility and focus. We will differentiate by offering deeper, more specialized insights (like fraud detection and prediction) which are not the core business of payment apps. We will also aim to be a neutral aggregator for all platforms.

Project Team details

Team name: ANSR

Team member names:

- Ruhan Saad Dave: 3rd Year, B.E, Computer Engineering
- Ayush: 3rd Year, B.E, Computer Engineering
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Project Mentor:

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