



International Journal of Multidisciplinary Research in Science, Engineering and Technology

(A Monthly, Peer Reviewed, Refereed, Scholarly Indexed, Open Access Journal)



Impact Factor: 8.206

Volume 8, Issue 11, November 2025



International Journal of Multidisciplinary Research in Science, Engineering and Technology (IJMRSET)

(A Monthly, Peer Reviewed, Refereed, Scholarly Indexed, Open Access Journal)

Smart Expense Tracking and Financial Insights

Vallari Bhuse, Shifa Shaikh, Prof. Pasnur P.S.

Dept. of Artificial Intelligence & Data Science, V. V. P. Institute of Engineering and Technology, Solapur,
Maharashtra, India

Dept. of Artificial Intelligence & Data Science, V. V. P. Institute of Engineering and Technology, Solapur,
Maharashtra, India

Dept. of Artificial Intelligence & Data Science, V. V. P. Institute of Engineering and Technology, Solapur,
Maharashtra, India

ABSTRACT: The Smart Expense Tracking & Financial Insights System is an AI-powered financial automation software that was developed with Ollama LLM (FinGPT), Firebase Realtime Database, Android (Kotlin), and Node.js backend. It automatically gathers transactional SMS data, classifies spending, synchronises data with the cloud, and offers conversational financial insights driven by AI. A web-based dashboard created with Next.js and Recharts for user-friendly visualisation is also part of the system. This project shows how mobile computing, cloud architecture, and AI-driven analytics may be used to create an intelligent, scalable financial management ecosystem.

KEYWORDS: ANDROID, FIREBASE, NODE.JS, AND OLLAMA LLM

I. INTRODUCTION

People now receive hundreds of financial SMS warnings from banks, wallets, and e-commerce platforms due to the quick adoption of digital payments. Manually handling these is ineffective and prone to mistakes. By capturing SMS transactions, organising them in Firebase, and enabling AI-assisted insights through FinGPT, the suggested system automates financial tracking. The solution creates a link between useful financial intelligence and unprocessed transactional data.

II. METHODOLOGY

1. Android App Layer: safe synchronisation, parsing, and SMS extraction.
2. Firebase Realtime Database, a cloud database layer for real-time synchronisation.
3. Backend Layer: Node.js for aggregation, authentication, and API orchestration.
4. Ollama LLM (FinGPT) for natural language insights in the AI layer.

III. MODELING AND ANALYSIS

Scalable and reusable design is made possible by the class diagram's inclusion of important entities including User, Account, Transaction, Category, Budget, SMSMessage, AIQuery, and Report. The ER model ensures normalised data storage and effective querying by defining structured relationships, such as User–Account–Transaction and Category–Transaction.



International Journal of Multidisciplinary Research in
Science, Engineering and Technology (IJMRSET)
(A Monthly, Peer Reviewed, Refereed, Scholarly Indexed, Open Access Journal)

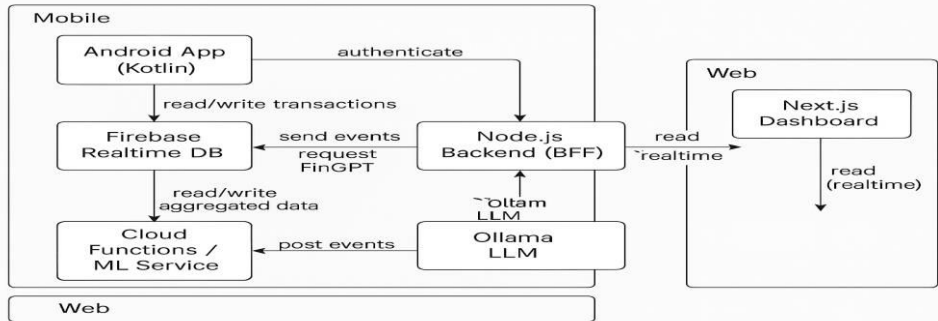


Figure 1: System Architecture

IV. RESULTS AND DISCUSSION

- Using Firebase for real-time cloud synchronisation, the system precisely collects and classifies SMS-based transactions.
- The Next.js dashboard helps customers efficiently monitor monthly expense trends and spending patterns by offering clear visual information.
- By providing individualised financial insights and responding to natural-language enquiries, AI-powered FinGPT improves user engagement.
- Strong performance, safe data processing, and great dependability are demonstrated by testing, which makes the system scalable for contemporary personal finance management.

All things considered, the platform offers a scalable, automated, and user-friendly financial management solution. By combining cloud computing, mobile automation, and AI-driven analytics, it makes tracking personal finances easier, offers insightful information, and gives consumers the power to make wise spending decisions.

Table 1. Core Technologies Used

Component	Technology	Purpose
Frontend	Next.js	Web interface for analytics
Database	Firebase	Real-time storage
Backend	Node.js	API Handling
AI Engine	Ollama LLM	Predictions and NLP
Data Visualization	Recharts	Interactive financial insights

V. CONCLUSION

The AI-powered Smart Expense Tracking System provides complete automation, intelligent insights, and real-time analytics to address the problem of fragmented financial data. Cloud computing, mobile automation, and LLM-driven analysis come together to provide a contemporary, scalable financial platform that may be expanded in the future to include investment insights, fraud detection, and predictive budgeting.

REFERENCES

1.Firebase Realtime Database Documentation — <https://firebase.google.com/docs/database> **Firebase**
2.Node.js Official Documentation — <https://nodejs.org/docs>
3.Ollama LLM & FinGPT Documentation — <https://docs.ollama.com> **docs.ollama.com+1**
4.Android (Kotlin) Developer Documentation — <https://developer.android.com/kotlin>
5.Next.js Documentation — <https://nextjs.org/docs>
6.Recharts Visualization Library — <https://recharts.org>



INTERNATIONAL
STANDARD
SERIAL
NUMBER
INDIA



INTERNATIONAL JOURNAL OF MULTIDISCIPLINARY RESEARCH IN SCIENCE, ENGINEERING AND TECHNOLOGY

| Mobile No: +91-6381907438 | Whatsapp: +91-6381907438 | ijmrset@gmail.com |

www.ijmrset.com