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FinPilot AI: An AI-Based Personal Finance Management and Advisory System

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ABSTRACT: The rapid growth of digital payment system, including UPI, credit/debit cards, digital wallets, and online banking, has significantly increased the convenience of financial transactions. However, this advancement has also introduced challenges in personal financial management, as users often struggle to track and manage their expenses across multiple fragmented platforms. Existing financial management applications primarily provide basic expense tracking and static reports, lacking intelligent insights, predictive alerts, and personalized financial guidance, which results in poor financial decision-making and instability. This project aims to develop a smart, unified personal finance management system that addresses these limitations by integrating financial data from multiple sources into a single platform. The proposed system will provide real-time expense tracking, budget management, and monitoring of EMIs, loans, and recurring subscriptions. It will also incorporate intelligent features to generate insights and recommendations that help users control overspending, improve savings habits, and plan their finances effectively. Additionally, the system focuses on enhancing financial awareness and security by offering guidance on financial planning, taxation, and investments, along with real-time alerts for suspicious or fraudulent activities. By combining data integration, intelligent analysis, and security mechanisms, the proposed solution aims to provide a comprehensive and user-friendly platform that enables individuals to achieve better financial platform, informed decision-making, and long-term financial stability.

KEYWORDS: Personal Finance Management System, Intelligent Financial Assistant, Machine Learning, Predictive Analytics, Transaction Categorization, Financial Recommendation System, Fraud Detection, Conversational AI.

I. INTRODUCTION

In the era of rapid digitalization, personal financial transactions have increasingly shifted towards platforms such as UPI, credit/debit cards, digital wallets, and online banking. While these technologies provide convenience and speed, they also create challenges in managing personal finances due to the fragmented nature of financial data across multiple sources. As a result, users often lack a clear and consolidated view of their income and expenses, leading to ineffective financial decision-making [1][2].

Existing financial applications primarily focus on basic expense tracking and manual data entry. However, they often fail to provide intelligent insights, predictive analysis, and proactive financial guidance [4][9]. This results in common issues such as uncontrolled spending, poor savings habits, hidden subscriptions, increasing EMI burdens, lack of financial planning, and exposure to digital payment fraud [2][3].

Furthermore, with the growing adoption of instant credit systems and subscription-based services, users frequently lose track of recurring expenses and long-term financial commitments. The absence of integrated systems that combine budgeting, forecasting, fraud detection, and personalized financial advisory highlights a significant gap in current solutions [8][10].

To address these challenges, this project proposes **FinPilot AI- An AI-Based Personal Finance Management and Advisory System**. The system leverages machine learning, predictive analytics, and conversational AI to automatically track transactions, categorize expenses, forecast financial risks, and provide personalized recommendations for budgeting, savings, and debt management [5][6][7].



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The proposed solution aims to transform traditional expense tracking into an intelligent and proactive financial management system. It is expected to improve financial awareness, enhance decision-making, reduce financial risks, and promote better financial discipline among users.

II. LITERATURE REVIEW

In the era of rapid digitalization, personal financial transactions have increasingly shifted towards platforms such as UPI, credit/debit cards, digital wallets, and online banking. The way people manage their money has changed a lot because of payment platforms, mobile banking apps and artificial intelligence. These days financial management is not about keeping track of how much money you have coming in and going out. It is also about using machine learning, understanding how people behave and getting advice from computers to make financial decisions.

Researchers have looked at these technologies one by one. Not many have put them all together into one system that cares about users' privacy.

Singh and Gedam [1] proposed a finance management system that helps people keep track of their money using one platform. Their work shows that using tools to track money helps people understand their finances better but it does not use smart analysis of how people behave or predict what they will do with their money.

Respati [2] examined how digital financial literacy influences individuals' financial behaviour. The findings showed that people with better digital financial knowledge are more likely to maintain disciplined budgeting habits and make informed financial decisions. These results emphasize the need for intelligent financial management systems that go beyond simply recording transactions by providing users with meaningful insights and decision support.

Apriadi [3] and others looked at how financial technology affects people's behaviour. They found out that using apps helps people budget and plan their money better. However, their research did not use artificial intelligence to analyse people's finances automatically.

One of the systems that automatically tracked expenses was made by Thanapal [4] and others. It was a system that helped people keep track of their money but it needed people to enter data manually and did not have smart features like predicting the future or detecting fraud.

Recently researchers have started using intelligence in personal finance apps. For example, Lakshmi Kishore [6] and others made an app that uses intelligence to track finances and help people make budgeting decisions. Subha and others made a platform that combines tracking expenses with financial advice. While these systems use intelligence they mostly focus on automating simple tasks and do not provide complete financial intelligence.

Zothansiam [8] and others made a finance tracker that suggests budgets to help people plan their money better. Their work shows that getting advice can help people make better financial decisions. However, their system does not look at how people behave or predict what they will do with their money.

Financial advisory systems have also changed a lot in the twenty years. Dziarstek [10] and others made a system that gives personalized advice based on who the user is. Yin [9] made a system that combines planning and advice for individual users. These systems show that personalization is important in help but they do not fully use new advances, in machine learning and artificial intelligence.

The use of learning has improved systems that suggest things to users. Zhang [11] and others showed that deep learning can effectively model how users behave and give suggestions.

As artificial intelligence makes important decisions it is crucial that we understand how it works. Rudin [12] argues that we should prefer systems that explain their decisions over those that do not in important applications. This is because understanding how a system works helps users trust it and makes it work better.



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With all these advances most research only looks at one part of managing personal finances. Most systems only track expenses make budgets give recommendations or provide advice. Not many systems put all these features together into one architecture that also explains its decisions and preserves users' privacy.

Although considerable progress has been made in personal finance management, existing research mainly focuses on individual functionalities rather than providing a complete financial management solution. Most systems are designed to perform specific tasks such as expense tracking, budgeting, financial recommendations, or advisory services independently. Very few solutions combine key capabilities such as automatic transaction collection, machine learning-based expense categorization, spending prediction, fraud and scam detection, financial health analysis, behavioural profiling, personalized recommendations, explainable AI [15], and conversational financial assistance within single system integrated platform. In addition, limited research has explored hybrid mobile-cloud based architecture that balance user privacy through on-device processing while leveraging cloud-based large language models to deliver advanced financial insights and decision support.

III. LIMITATIONS

The comparative analysis shows that most existing personal finance management systems mainly focus on basic features such as expense tracking, budgeting, and limited AI-based transaction categorization. However, many of these systems do not provide advanced features like automatic SMS transaction extraction, spending prediction, behavioural analysis, fraud detection, explainable AI, and AI-based conversational financial assistance.

Table I: Comparative Analysis of Existing Personal Finance Applications

Application	Key Features	Strengths	Limitations
Walnut	Automatic SMS-based expense tracking, bill reminders, bank balance monitoring, expense categorization	Automatic SMS capture, simple interface, supports multiple bank accounts.	No ML-based categorization, forecasting, personalized advice, or fraud detection.
Axio	Expense tracking, bill reminders, credit monitoring, AI insights, loan management	User-friendly interface and real-time monitoring	Limited predictive analytics; recommendations are mostly rule based.
Money Manager	Manual expense recording, budgeting, reports, charts	Detailed reports, offline support, customizable categories	Requires manual entry; no AI, forecasting, or anomaly detection
YNAB	Goal-based budgeting, cloud synchronization, debt management	Excellent budgeting discipline and planning	Subscription-based; no predictive alerts or AI
Money View	Credit score monitoring, expense categorization, loan services	Good credit management and spending analysis	Limited customization and predictive intelligence
Good budget	Envelope budgeting, manual budget allocation	Simple and effective household budgeting	Manual input; no automatic tracking or forecasting
Mint	Budgeting, investments, credit tracking, bill reminders	Comprehensive financial dashboard	US-centric; limited support for Indian users and predictive analytics
ET Money	Investments, expense tracking, insurance, goal planning	Strong Indian investment ecosystem	Limited AI budgeting and forecasting
CRED	Credit card payments, rewards, credit score	Excellent credit card management	Limited expense analytics and budgeting
Spondee	Budget planning, shared wallets, bank sync	Good visualization and collaboration	Premium features; limited AI functionality



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Table II. Research Gaps in Existing Systems

Existing System	Major Limitation / Research Gap
Personal Finance Management System [1]	Primarily records income and expenses without providing intelligent analysis or prediction.
Digital Financial Literacy Study [2]	Focuses on user financial behaviour but does not offer an automated financial management solution.
FinTech Behaviour Study [3]	Evaluates FinTech adoption without implementing intelligent financial assistance.
Income & Expense Tracker [4]	Requires manual transaction entry and lacks automation.
AI-Powered Expense Tracker [5]	Focuses mainly on expense monitoring and budgeting.
AI-Powered Finance Tracker [6]	Limited behavioural understanding and explainability.
Budget Recommendation AI [8]	Recommendation system operates independently from other financial intelligence modules.
Financial Advisory Systems [9][10]	Personalized advice depends on predefined rules and lacks automated transaction intelligence.

IV. QUANTITATIVE COMPARATIVE ANALYSIS:

To provide a quantitative perspective on the literature review, the identified systems were compared based on fifteen key functional features related to intelligent personal finance management. The comparison includes both basic functionalities, such as income and expense tracking, and advanced capabilities such as automatic SMS-based transaction extraction, machine learning-based transaction categorization, spending forecasting, financial health assessment, behavioural analysis, fraud detection, explainable AI, and conversational financial assistance.

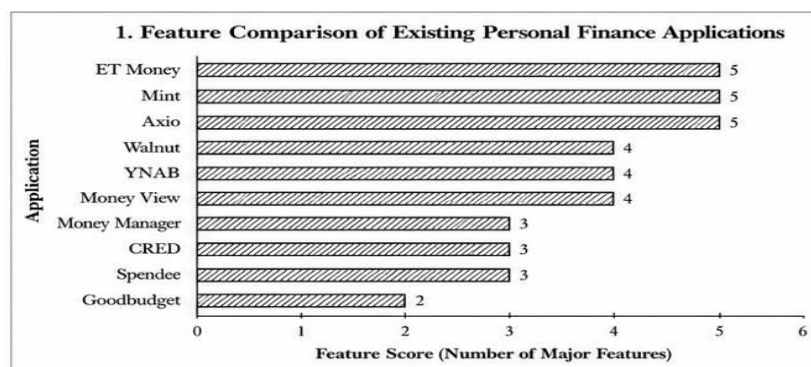


Fig. 1. Feature Coverage Comparison of Existing Systems and Proposed FinPilot AI.



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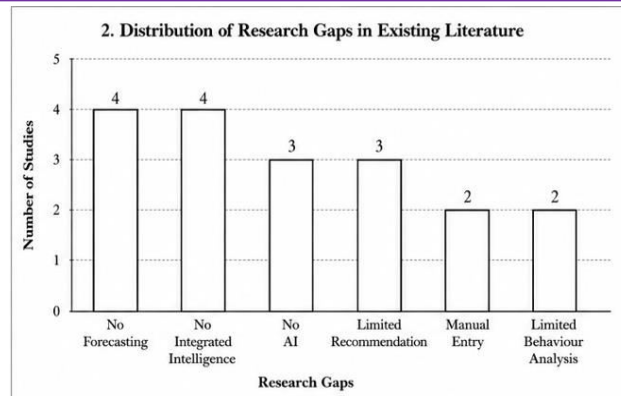


Fig. 2. Frequency of major research gaps identified in existing literature

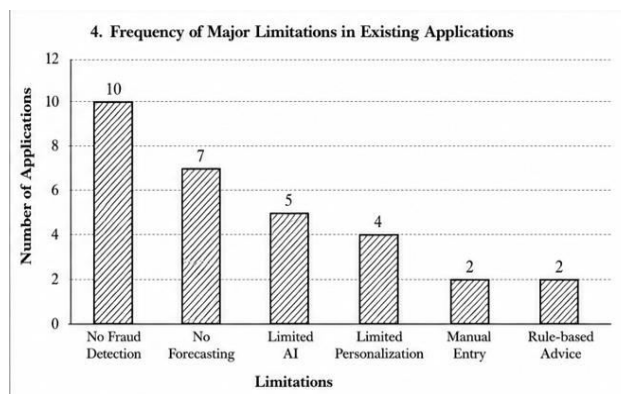


Fig. 3. Frequency of major limitations in existing applications.

To complement the qualitative literature review, a quantitative comparison was carried out using fifteen key features related to intelligent personal finance management. The comparison evaluates the functional capabilities of existing systems, highlighting their strengths while identifying the areas where current solutions are still limited.

Figure 1 presents the overall feature coverage across popular personal finance applications. It shows that applications such as Axio, Mint, and ET Money offer relatively comprehensive financial management features. However, most existing systems still lack advanced AI-driven capabilities and intelligent financial assistance.

Figure 2 summarizes the major research gaps identified from the reviewed literature. The most common gaps include the absence of spending forecasting, integrated financial intelligence, and AI-based decision support. These findings indicate the need for more intelligent and comprehensive personal finance management systems.

Figure 3 illustrates the frequency of the major limitations observed across existing personal finance applications. The lack of fraud detection, predictive analytics, advanced AI capabilities, and personalized financial recommendations are among the most common limitations identified during the comparative analysis.

V. CONCLUSION

This review paper presents a comparative analysis of existing personal finance management applications and recent research studies to understand their features, strengths, and limitations. The study shows that most existing applications provide useful function as expense tracking, budgeting, bill reminders, credit monitoring, and basic financial reporting. Although some systems have started using artificial intelligence for expense categorisation and financial insights, their overall capabilities are still limited in terms of automation, personalization, and intelligent financial assistance.



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The literature review identifies several important research gaps, including the lack of accurate expense forecasting, fraud detection, behavioural analysis, explainable AI, personalized financial recommendations, and integrated decision-support systems. Many existing applications focus on solving only specific financial tasks instead of providing a complete and intelligent personal finance management solution. In addition, several systems still rely on manual data entry or rule-based approaches, which reduce their efficiency and flexibility. Overall, this study highlights the need for more advanced AI-based personal finance management systems that can combine automation, machine learning, predictive analytics, and personalized financial guidance within a single platform. Such intelligent systems have the potential to improve financial planning, support better decision-making, and help users manage their personal finances in a more efficient, secure, and convenient manner. This review paper analyzed existing personal finance management applications and recent research studies to understand their features, advantages, and limitations. Most existing applications provide useful features such as expense tracking, budgeting, bill reminders, and basic financial reporting. Some applications also use AI for expense categorization, but their overall intelligence and automation are still limited.

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