**Title: Literature Survey on Expense Tracking Systems**

**1. Introduction**

Purpose of the Review:

This review explores existing expense tracking systems to contextualize the unique features of our project, which integrates multimodal input (manual and voice) and multilingual support. As expense tracking gains relevance for individuals aiming to manage their finances effectively, this project fills a notable gap by combining ease of data entry, language accessibility, and comprehensive visualization features.

Scope and Project Organization:

The review covers the main themes of expense tracking, multimodal input methods, multilingual interface applications, and data visualization techniques in personal finance management. Key areas explored include previous works’ focus on manual tracking, language limitations, and gaps in visualization, providing a foundation for comparing these features with our project’s scope.

**2. Background and Context**

Foundational Concepts:

Expense tracking involves recording financial inflows and outflows to aid budgeting and financial planning. Recent advancements emphasize user accessibility, multimodal data entry, and insightful visualization, as individuals seek intuitive tools that simplify expense monitoring.

Historical Overview:

Early expense trackers were basic ledger systems with manual data entry, gradually evolving to digital applications with automated categorization. Current trends incorporate voice input and personalized experiences to reduce data entry burden, but limited multilingual support remains an area for improvement.

**3. Key Themes in the Literature**

Theme 1: Accessibility in Data Entry Methods

Summary of Findings: Projects by Thanapal and Karim have shown that simplifying data entry encourages consistent use. Thanapal’s work uses manual entry with reminders, while Karim’s digital diary offers straightforward logging without categorization.

Key Debates: Balancing simplicity with functionality remains a key debate, with some systems favouring minimal input requirements, potentially sacrificing depth in data analysis.

Methodologies: Surveys and usability testing highlight how manual versus voice entry affects engagement, particularly for diverse user demographics.

Theme 2: Multilingual and Multicultural User Interfaces

Summary of Findings: Chandini’s expense tracker offers data sorting features but lacks multilingual support. Other projects focus on localization through features like currency conversion, yet support for regional languages like Hindi and Telugu remains sparse.

Key Debates: Designing accessible interfaces for multilingual users poses challenges in regional language nuances and localization accuracy.

Methodologies: Comparative studies assess usability based on language preference, showing higher retention in applications that support users' primary languages.

Theme 3: Visualization and Financial Insights

Summary of Findings: The addition of visualizations in expense trackers like those in Thanapal’s proposal has proven useful for pattern recognition, though insights are often limited to expense tracking without income analysis.

Key Debates: There’s an ongoing discussion about balancing detailed visuals with simplicity, as overloading users with data may detract from a system’s usability.

Methodologies: Analysis of user engagement with graphical representations shows a positive impact on user satisfaction, particularly when visualizations are clear and relevant.

**4. Methodological Approaches**

Common Methodologies: The primary methodologies across studies include qualitative user interviews, comparative usability testing, and data analysis of user retention rates.

Strengths and Weaknesses: While surveys effectively capture user preferences, usability testing provides insights into real-time engagement, a more accurate predictor of user retention.

Trends in Methodology: Recent studies emphasize real-time voice and language processing integration to support diverse user needs, suggesting a shift towards increasingly personalized tracking experiences.

**5. Gaps and Limitations in the Literature**

Identify Gaps:

Limited research focuses on expense trackers that offer both multimodal input and language preference. Few studies address comprehensive financial insights that combine both income and expenses, highlighting a gap in holistic financial tracking.

Limitations:

Many existing trackers, such as those by Karim and Thanapal, lack in-depth visualization and user-friendly interfaces, especially for multilingual users. Some also rely heavily on manual entry, which can be burdensome.

Opportunities for Further Research:

Future work could explore the integration of real-time language translation and advanced visualization to provide more personalized financial insights. Studies could also examine the efficacy of expense trackers in enhancing users’ financial literacy and budgeting skills over time.

**6. Applications and Implications**

Practical Applications:

Our project’s voice input and language preference features enable broader accessibility for users, particularly those more comfortable in languages like Hindi and Telugu. This addresses gaps in current systems by allowing seamless input and better data visualization, catering to diverse linguistic backgrounds.

Theoretical Implications:

Our project supports theories suggesting that personalization and accessibility in financial tools lead to better financial management. By expanding on existing models, this project may set a precedent for more inclusive and intuitive financial management tools.

**7. Conclusion**

Summary of Key Points:

The review identifies strengths and gaps in current expense tracking systems, emphasizing the need for simplified input, language accessibility, and holistic data visualization. Previous works focus on specific features like category-based tracking or data export but often lack multimodal input and language support.

Implications for Future Work:

Our project contributes to the field by combining voice input, multilingual support, and visualizations that track both income and expenses, making it suitable for users across varied backgrounds. Future research could expand on these features, exploring their impact on financial discipline and budgeting effectiveness.

References

Thanapal, "Expense Tracker with Reminders and Payment Scheduling."

Chandini, "Comprehensive Expense Tracker with Location, Photo, and Data Sorting."

Karim, "Simple Daily Expense and Income Tracker with Digital Diary."

Researchers of Mother Teresa University, "Online Income and Expense Tracker."