

**University Technology MARA**

**F-Track: Family Expenses Tracker**

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**Thesis submitted in fulfilment of the requirements for Bachelor of  
Information Technology (Hons.) Faculty of Computer and Mathematical  
Sciences**

**July 2025**

## **ACKNOWLEDGMENT**

All praises are due to Allah, whose blessings and guidance have made it possible for me to complete this project. I am incredibly thankful for the strength and wisdom that Allah has granted me throughout this journey. A special thank you goes to my supervisor, Wan Saiful'Azam Bin Wan Ismail, for his unwavering support, guidance, and constructive feedback throughout the development of this project. His expertise and encouragement have been invaluable.

I would also like to express my deepest gratitude to my parents, for their endless love and support. Your belief in me, even in the toughest times, has been a source of constant motivation. Your sacrifices and encouragement have been instrumental in helping me stay focused and determined.

I would also like to express my sincere appreciation to Dr. Firdaus, who has contributed as a lecturer and examiner for CSP650. Your expertise and dedication have enriched the learning experience for everyone involved, and I am thankful for your involvement in this academic endeavour.

Additionally, I want to thank all my friends and classmates for their support and companionship, especially during challenging times. Your kindness and willingness to lend a hand made this academic journey much more enjoyable and fulfilling. Finally, to everyone who has contributed to this project in any way, your belief in my potential has been crucial to my success, and I am deeply grateful for all the assistance and encouragement you have provided. Thank you for being a part of my academic and personal growth.

## **ABSTRACT**

In an era where effective financial management is increasingly critical, many individuals and families continue to struggle with maintaining budgets and tracking expenses. Common challenges include the tedious nature of manual data entry, low financial literacy, and the absence of tools that are both user-friendly and intelligent. This project addresses these issues through the development of F-Track, a web-based expense tracking system designed to be intuitive, efficient, and accessible. The system's core aim is to help users manage their finances more effectively by allowing voice-enabled expense input, real-time budget monitoring, automated expense categorization, and personalized email notifications. The project is guided by clear objectives: to provide a platform that simplifies expense logging through voice recognition, enhances awareness through real-time alerts, supports categorization of expenses, and enables users to analyze spending habits for improved financial planning. The methodology involves a full-stack development approach using HTML, CSS, JavaScript for the frontend and Node.js with Firebase Firestore and Firebase Authentication on the backend. The Web Speech API is integrated to enable voice recognition, while Firebase Cloud Functions handle automated processes like the `checkBudgetAlert` function, which monitors user expenses and sends email alerts when limits are exceeded. Results show that F-Track effectively meets its functional and non-functional requirements. Users are able to input transactions hands-free, receive timely alerts, and manage data securely and efficiently. The system also demonstrated scalability, real-time synchronization, and ease of use during testing. By successfully aligning with its initial objectives and addressing the identified problems, F-Track proves to be a practical solution that empowers users to build better financial habits, demonstrating a significant step forward in personalized digital financial tools.

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## **CHAPTER 1: INTRODUCTION**

This chapter provides a comprehensive overview of the research topic and establishes the foundation for the study. It offers an in-depth explanation of the study's background, clearly defines the problem statement, outlines the research objectives and questions, and discusses the anticipated outcomes. Furthermore, this chapter emphasises the significance of the research, outlines the project scope, and highlights its relevance and potential impact.

### **1.1 Background**

Managing personal and household finances has become increasingly challenging and complex due to fast-paced modern-day lifestyles and digitalisation. High levels of variable expenses, discretionary spending, and unexpected financial obligations frequently impede many individuals and families from obtaining financial stability. This problem creates a substantial demand for updated financial management tools that can help simplify budgeting, monitor spending and promote better financial decision-making. Financial Technology, or FinTech, has addressed this issue by creating many digital applications to improve financial literacy and management.

However, many of these tools lack fundamental features, including real-time tracking, customised budgets, and user-friendly interfaces. A key issue users face is the difficulty in inputting data, as many apps require manual typing of expenses, which can be time-consuming and prone to error. This creates a barrier for users who struggle to efficiently track and manage their finances. As a result, users are often unable to secure their purchases properly, set realistic financial goals, or make informed decisions about their financial health. According to Saare et al. (2020), the cumbersome nature of manual data entry in financial management apps significantly hinders user engagement and the effectiveness of such tools.