Universiti Teknologi MARA

Tracify: Personalize GPS-Based People Tracking Mobile Application

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ABSTRACT

There were 4,743 cases of children who went missing from the year 2017 to 2021, and the investigation into most of them was not completed. The choices that currently exist, for instance, messaging applications as well as basic location-sharing applications, were also inefficient in emergencies due to low real-time accuracy, geofencing integration, and flexibility. This gap emphasizes the necessity of a reliable tracking system that enables users to keep an eye on loved ones and respond immediately. For providing a straightforward and methodical approach to development, the project uses the structured Waterfall method. Functional and non-functional requirements are defined, interfaces and mapping features using GPS are designed, and thorough usability testing is carried out. The main development tool is Android Studio, while Firebase offers a safe and real-time database management system. The Nielsen Norman Group's guidelines are followed in usability testing to confirm that this project is user-friendly and functional. The proposed customizable tracking application enables users to monitor individuals' locations and receive alerts when tracking loved ones. By leveraging GPS technology with an accuracy of approximately 2.5 meters, the app ensures precise location tracking. Targeting teenagers (ages 13 and above) and independent elderly users, the system accommodates a wide user base while prioritizing ease of use. The findings demonstrate the app's effectiveness in addressing safety concerns and filling gaps in existing solutions. This innovative approach combines GPS tracking and personalized features, offering a comprehensive tool to enhance personal security and peace of mind. This project ultimately contributes to societal safety by providing families and communities with a dependable and proactive solution.

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INTRODUCTION

This chapter describes the background of the study. It also provides a comprehensive overview of the problem statement, research questions, aim, and objectives that guide the project. Additionally, it outlines the scope, significance, and expected outcomes of the study, forming the foundation for the development of this project.

1.1   Background of Study

In an increasingly developed and mobile society, personal safety and security concerns are growing, particularly among family members and friends. Malaysia, like many other countries, has seen an increase in occurrences of missing people, particularly in crowded or unfamiliar places. Considering the growing number of cases that involve missing individuals, family and friends have become frequently concerned about the location of their loved ones. According to Bukit Aman's Criminal Investigation Department, between 2017 and 2021, almost 4,400 children under 18 were reported missing, with 72 still unknown at the end of that period (Malay Mail, 2021). Felyx (2024) states that, according to the Home Minister, Datuk Seri Saifuddin Nasution Ismail indicates that 3,847 children aged 13-18 were reported missing between 2020 and September 2024. This alarming number highlights Malaysia's growing issue of missing people cases, emphasizing the importance of taking proactive actions to protect loved ones. In addition to concerns for children and teenagers, the need for safety also extends to adults who face risks in missing person cases. For instance, the case of Muhammad Hamizan Ramli, an