**Introduction**

As a bustling metropolis and economic hub in Malaysia, Johor Bahru relies heavily on its public transportation network to facilitate the mobility of its residents and workforce. However, navigating the city's bus system often presents challenges for commuters, particularly in predicting bus arrival times and minimizing wait times at bus stops. The inherent variability of traffic conditions, coupled with the lack of real-time information, exacerbates the uncertainty and inconvenience experienced by passengers as they plan their journeys across the city. Therefore, this project aims to enhance the user experience and efficiency of public bus systems in Johor Bahru by introducing a real-time tracking system. Specifically, our objectives include reducing average waiting times, increasing ridership levels, and improving overall satisfaction among commuters.

This project proposal provides a comprehensive clarification of the project overview, organizational background study including problem definitions, feasibility study, and project planning. It offers detailed insights into each aspect, shedding light on the objectives, challenges, economic viability, and strategic planning involved in enhancing public bus systems.

**Organizational Background Study**

The public bus system in Johor Bahru is primarily operated by multiple bus companies under the oversight of the Land Public Transport Commission (SPAD) and the Iskandar Regional Development Authority (IRDA). The system comprises a network of routes covering various areas within the city and its surrounding suburbs. Key bus terminals and hubs, such as Larkin Sentral and JB Sentral, serve as central points for passenger transfers and intermodal connectivity.

multiple bus operators manage different routes and services. These operators range from large corporations to smaller, independent companies, each responsible for specific routes or geographic areas.

**Identified Problems**  
**Unreliable Schedule Adherence**

The lack of real-time tracking capabilities results in unreliable bus arrival times and schedules, exacerbating passenger uncertainty and frustration due to the absence of accurate information on bus locations and arrival times. This uncertainty contributes to longer wait times and missed connections, diminishing the overall user experience and efficiency of the public bus system in Johor Bahru.

**Inadequate Service Monitoring**

Due to the absence of real-time tracking capabilities, transportation authorities encounter significant challenges in effectively monitoring and managing bus services. The lack of real-time data on bus operations impedes authorities' ability to promptly identify service disruptions, address operational issues, and uphold service quality standards. Consequently, this limitation hinders the overall efficiency and reliability of the public bus system in Johor Bahru, compromising the quality of service provided to passengers and the system's ability to adapt to changing conditions.

**Problem Statement**

The public bus system in Johor Bahru faces significant challenges that hinder its effectiveness in providing reliable, efficient, and user-friendly transportation services. Key issues include the lack of real-time tracking capabilities, resulting in unpredictable bus arrival times, inefficient route planning, and limited accessibility information for passengers and transportation authorities.

**Improvement Opportunities**

**Congestion and Traffic Delays**

Addressing traffic congestion, especially during peak hours, is paramount to improving bus service reliability and reducing waiting times. Implementing real-time tracking systems can aid in dynamically adjusting bus routes and schedules to navigate around traffic bottlenecks, ultimately enhancing service efficiency.

**Infrastructure Constraints**

Improving infrastructure amenities such as bus shelters, signage, and digital displays can enhance the overall passenger experience and comfort while waiting for buses. Integrating technology solutions like smart bus stops equipped with real-time arrival information can mitigate uncertainty and provide commuters with timely updates on bus arrivals, contributing to a more seamless travel experience.

**Technological Integration Opportunities**

Leveraging technology solutions such as mobile applications and data analytics can significantly enhance the efficiency and effectiveness of public bus systems.