

Phase 2: Innovation

Enhancing Public Transportation with IoT Sensors

Objective:

Incorporating IoT technology is the focal point of this project, with the primary goal being to enhance public transportation quality. Real-time information about parking availability and transit schedules can be accessed in a novel way by integrating smart sensors into vehicles, revolutionizing how commuters access said information.

Introduction:

In this phase, we will explore innovative solutions and strategies to address the identified problem of enhancing public transportation with the integration of IoT sensors. Building upon the design thinking document from Phase 1, we will outline specific innovations and their potential impact.

1.IoT Sensor Enhancements:

Innovative Objective:

To further improve the efficiency and accuracy of occupancy detection, we will explore advanced sensor technologies.

- Image Recognition Sensors: Integrating image recognition sensors alongside ultrasonic sensors can provide visual confirmation of parking space occupancy. This enhancement will not only improve accuracy but also assist users in identifying the location of available spaces.
- Machine Learning Algorithms: Implement machine learning algorithms on the Raspberry Pi to enhance the sensor's ability to predict parking space availability based on historical data and user patterns.

2.Data Analytics for Predictive Insights:

Innovative Objective:

Leverage data analytics for predictive insights to enhance the overall transportation experience.

- Predictive Traffic Analysis: Utilize historical data and real-time traffic information to predict congestion and recommend alternative routes to users, reducing commute times.
- Demand Forecasting: Use data analytics to forecast peak hours and parking space demand, enabling proactive management and improved resource allocation.

3. User-Centric Mobile App Features:

Innovative Objective:

Enhance the mobile app with innovative features to make the user experience more engaging and informative.

- Augmented Reality Navigation: Implement augmented reality (AR) features to guide users to available parking spaces, enhancing the overall parking experience.

4. Sustainability Integration:

Innovation Objective:

Promote efficient transportation as part of the solution.

Electric Vehicle (EV) Charging Information: Contains information on EV charging stations, availability and integration with charging programs to encourage the use of electric vehicles for commuting.

Carbon Emission

Tracking: Allows users to track and see their carbon emissions by using public transportation, raising awareness and promoting environmental choices.

5. Community Engagement and Feedback Loops:

Innovation Goals:

Get feedback from users and transit authorities to improve lasting treatment.

Community Forum: Create an online community forum in the app where users can share ideas, tips and experiences.

- AI-powered chatbots: Use AI-powered chatbots to provide quick assistance and problem resolution, increase user satisfaction, and improve communication.

At this stage, we have announced new solutions that will improve public transportation through the integration of IoT sensors. These innovations include advanced sensor technology, data analysis for predictive insights, user-centric mobile app capabilities, collaboration, good collaboration, and community engagement. By integrating these innovations, we aim to provide a better transportation and customer experience, while also promoting sustainability and reducing congestion.