Summaries and Analyses of Similar Tricycle Transportation Projects

1. Traysi: A Tricycle Commuting Web Application

- **Summary**: Traysi is a web application designed to streamline the tricycle commuting experience by providing users with real-time information about tricycle availability, estimated arrival times, and trip costs. It also facilitates a digital payment system for fare transactions, enhancing convenience for both commuters and drivers.
- **Goal**: The primary goal is to improve the commuting experience by making it more efficient, transparent, and user-friendly.
- **Purpose**: To address issues such as unpredictable tricycle availability, lack of transparency in fare rates, and the inconvenience of cash payments.
- **Problem**: The application seeks to solve problems related to the uncertainty of tricycle availability, inefficient fare transactions, and the lack of an organized system for tricycle services.

2. TC Trissea App by SPUP

- **Summary**: The TC Trissea App, developed by St. Paul University Philippines (SPUP), is an application focused on providing a safer and more organized tricycle commuting experience. It includes features like driver identification, trip logging, and an emergency alert system that enhances safety for both commuters and drivers.
- **Goal**: To create a safer and more organized tricycle transport system through the use of technology.
- **Purpose**: To reduce the risks associated with tricycle commuting, including the potential for unregistered or unsafe drivers, and to improve accountability within the system.
- **Problem**: The app addresses problems related to commuter safety, the risk of riding with unregistered drivers, and the need for a more organized tricycle transport system.

3. Pedi.ph / Pedi Driver - Drive and Earn

- **Summary**: Pedi.ph is an online platform that connects commuters with tricycles and pedicabs. The platform offers booking services, real-time tracking, and an organized fare system. It also includes features that allow operators to manage their fleets and drivers efficiently.
- **Goal**: To provide a more structured and accessible tricycle and pedicab service, making it easier for commuters to find rides and for operators to manage their fleets.
- **Purpose**: To improve the efficiency and accessibility of tricycle services while providing a platform for operators to manage their drivers and vehicles.

- **Problem**: Pedi.ph aims to solve issues related to the availability of tricycles, the organization of fleets, and the transparency of fare rates.

4. TrykeCorp

- **Summary**: TrykeCorp is a service platform that offers a comprehensive management system for tricycle operators. It provides tools for vehicle registration, driver management, and operational monitoring. It also features a commuter app that helps passengers locate and book rides.
- **Goal**: To modernize the tricycle industry by providing operators with digital tools to manage their operations more effectively and by offering commuters a more convenient way to access tricycle services.
- **Purpose**: To enhance the efficiency of tricycle operations and improve the commuting experience through digitalization.
- **Problem**: TrykeCorp focuses on solving problems related to the management of tricycle operations, including vehicle registration, driver oversight, and service availability for commuters.

Similarities

- **Digitalization of Tricycle Services**: All the projects aim to digitalize various aspects of tricycle transportation, from booking and fare payment to fleet management and commuter safety.
- **Improved Commuter Experience**: Each project focuses on improving the overall experience for commuters by providing real-time information, better access to tricycle services, and enhanced safety features.
- **Fleet and Driver Management**: Several projects emphasize the importance of organizing and managing tricycle fleets and drivers, offering tools for operators to oversee their operations effectively.
- **Safety and Transparency**: Ensuring commuter safety and transparent fare systems is a common theme, with features like driver identification and emergency alerts.

Identified Problem Domain

The overarching problem domain across these projects is **"The inefficiency and safety concerns of the traditional tricycle transport system in urban areas."** This domain is reflected in the various issues these projects address, including the unpredictability of tricycle availability, lack of a standardized fare system, safety risks for commuters, and challenges in managing tricycle operations.

Solutions Used

- **Real-time Tracking and Availability Information**: Providing commuters with up-to-date information on tricycle availability and locations.

- **Digital Payment Systems**: Introducing cashless fare transactions to streamline the payment process.
- **Driver and Fleet Management Tools**: Offering operators tools to manage their drivers and vehicles effectively.
- **Safety Features**: Implementing safety measures such as driver identification, trip logging, and emergency alerts.
- **Comprehensive Management Platforms**: Integrating multiple aspects of tricycle operations, including registration, driver oversight, and operational monitoring, into a single platform.

Conclusion

These projects are all tackling the inefficiencies and safety issues in tricycle transportation, not just in specific cities but across urban areas in the Philippines. They show a consistent effort to modernize the tricycle transport system through digitalization and improved management practices, aiming to make commuting safer, more efficient, and more transparent.

Smart Tricycle Transportation System for Naga City

Overview: a comprehensive, smart tricycle transportation system designed to enhance the efficiency, safety, and overall experience of tricycle commuting in Naga City. The system integrates digital tools for commuters, drivers, operators, and regulatory bodies to create a seamless and modernized tricycle transport network.

Key Features and Components:

1. Commuter System (User App)

- **Tricycle Availability**: Commuters can see available tricycles nearby, along with estimated waiting times.
- **Digital Payment Integration**: Cashless payment options are available, including mobile wallets, QR codes, and contactless cards.
- **Driver Information and Ratings**: Users can view driver profiles, including ratings from previous passengers, ensuring transparency and trust.
- **Ride Booking and Scheduling**: Allows commuters to book rides in advance and schedule regular trips, providing flexibility and convenience.
- **Safety Features**: Panic button for emergency situations, sharing trip details with trusted contacts, and GPS tracking of rides.

2. Operator to Driver System (Management Platform)

- **Driver and Fleet Management**: Operators can monitor and manage their tricycles and drivers, including scheduling, maintenance logs, and performance tracking.
- **In-App Communication**: A direct communication channel between operators and drivers for real-time updates, instructions, and issue reporting.
- **Compliance and Reporting**: Automated tracking of regulatory compliance (licenses, permits) and easy submission of required reports to authorities.

3. Registration System/Cooperation to Operator (Regulatory Interface)

- **Digital Registration (Optional)**: Tricycles can be registered digitally, with operators submitting necessary documents online. Automated reminders for renewals and compliance checks.
- **Permit and Compliance Management**: Centralized platform for managing permits, safety inspections, and regulatory compliance for tricycles and operators.
- **Cooperative Management Tools**: Tools for cooperatives to manage operator memberships, fees, and support services. Cooperative communication channels for updates and announcements.
- **Data Integration with City Authorities**: Integration with city transport authorities for real-time data sharing and monitoring of tricycle operations, contributing to urban planning and policy-making.

Project Goals:

- **Maximize Efficiency**: Streamline operations for commuters, drivers, operators, and regulatory bodies by using digital tools to reduce wait times, improve route efficiency, and ensure regulatory compliance.
- **Enhance Safety**: Introduce safety features for both commuters and drivers, including real-time tracking, driver verification, and emergency alert systems.
- **Increase Transparency and Trust**: Provide commuters with transparent fare systems, driver information, and reliable services. Operators and drivers gain access to performance data and streamlined compliance processes.
- **Support Sustainable Urban Mobility**: Contribute to the overall goal of smart and sustainable cities by reducing congestion, optimizing routes, and promoting digitalization in public transport.

By integrating these features and strategies, aims to maximize the efficiency of tricycle transportation in Naga City while addressing the core issues of safety, transparency, and operational management. This project leverages the best ideas from existing systems and incorporates new solutions tailored to the specific needs of Naga City.

Resources

1. **The Role of Digitalization in Enhancing the Efficiency of Public Transport in Developing Countries**
    - https://www.unescap.org/sites/default/d8files/event-documents/4F_2400139_8013_E_0.pdf

Summary of Studies (Focusing on Problems in Tricycle Transport):

1. Urban Transport and the Environment: The Case of Metro Manila

- **URL**: Urban Transport - Ombudsman Philippines https://www.ombudsman.gov.ph/UNDP4/wp-content/uploads/2012/12/Chap-07.-Urban-Transport-30Nov06-UPF.pdf
- **Summary**: This study discusses the urban transport challenges in Metro Manila, including the role of tricycles as a key mode of transportation. Problems highlighted include:
    - **Congestion**: Tricycles contribute to traffic congestion, especially in narrow streets and urban centers where they operate alongside larger vehicles.
    - **Safety Concerns**: Due to the informal nature of tricycle operations, there are significant safety issues, including poorly maintained vehicles and lack of proper driver training.
    - **Environmental Impact**: The study also points out the environmental impact of tricycles, particularly their contribution to air pollution due to the use of older, less efficient engines.

2. The Impact of Urbanization and Economic Growth on Tricycle Use in Southeast Asian Cities

- **URL**: SCIRP Journal https://www.scirp.org/journal/paperinformation?paperid=118594
- **Summary**: This paper examines the growth of tricycle use in urbanized areas of Southeast Asia, focusing on the Philippines. It identifies several issues:
    - **Unregulated Operations**: Many tricycles operate without proper regulation, leading to issues with fare transparency and safety standards.
    - **Overcrowding**: Tricycles are often overloaded with passengers or cargo, increasing the risk of accidents and further contributing to congestion.
    - **Economic Challenges**: While tricycles provide essential income for drivers, they also face economic pressures due to competition, rising fuel costs, and maintenance expenses.

3. Urbanization and Public Transportation in Southeast Asia: The Role of Tricycles

- **URL**: ScienceDirect - Elsevier https://www.sciencedirect.com/science/article/abs/pii/S0264275123001518?via%3Dihub
- **Summary**: This article explores the role of tricycles in urban transportation across Southeast Asia, with a focus on challenges faced in cities like Manila:
    - **Inefficient Integration**: Tricycles are often poorly integrated into the broader public transportation system, leading to inefficiencies and gaps in service.
    - **Safety and Regulation**: The study emphasizes the lack of effective regulation and safety standards, resulting in high accident rates and inconsistent service quality.
    - **Environmental Concerns**: Like other studies, this one highlights the environmental issues posed by older tricycle models that contribute to air pollution and noise in urban areas.

These studies provide a comprehensive view of the challenges faced by tricycle transportation in the Philippines and Southeast Asia, emphasizing the need for improved regulation, safety standards, and integration into the broader transport network.

Similar Studies/Citations Supporting the Need for Improvement:

1. **"The Public Transport Sector in the Philippines: An Overview of its Current Situation and Future Prospects"** - This study highlights the inefficiencies and safety concerns in the current public transport system, including tricycles, and calls for modernization through digital solutions .
2. **"Exploring the Feasibility of Intelligent Transport Systems in Southeast Asian Cities"** - This paper discusses the potential of Intelligent Transport Systems (ITS) in improving urban mobility in Southeast Asia, emphasizing the need for real-time tracking and digital payment systems for small-scale transport modes like tricycles .
3. **"The Role of Digitalization in Enhancing the Efficiency of Public Transport in Developing Countries"** - This research underscores the importance of digital tools in transforming public transport systems in developing countries, with a focus on enhancing commuter experience, safety, and operational efficiency .
4. **"Tricycle Transport in the Philippines: Challenges and Opportunities for Sustainable Development"** - This study explores the challenges faced by tricycle transport, such as safety risks, inefficiency, and regulatory compliance issues, and proposes solutions involving digitalization and better management practices .
5. **"Urban Mobility and Public Transportation in Philippine Cities"** - This study highlights the growing need for improved public transportation systems in Philippine cities, particularly in relation to the role of tricycles in providing last-mile connectivity and the potential for digital transformation to address existing challenges .