**MOBILE-BASED TRICYCLE BOOKING APPLICATION FOR STUDENTS AT KADUNA POLYTECHNIC MAIN CAMPUS**

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**1.1 Background of the Study**

Tricycles are a common means of transportation in most developing countries. Local public transportation in the form of tricycles is available at the Kaduna Polytechnic. Tricycles provide services by carrying commuters to main roadways while using little fuel. The tricycle is renowned for its use as a gap filler. They operate primarily to cover service gaps created by buses and other forms of conventional public transportation.

Transportation has to do with the movement of people, goods, and services from one place to another. Para, P. (2019). Transportation services are the entity responsible for managing campus transit systems, parking, and related transportation programs. Transportation provides the essential marketing utilities of place and time; people depend on transportation to achieve their goals in life. Nothing moves without transportation. Transportation as a people-oriented function requires a people-oriented approach to its performance. (Bari & Efroymson, 2022).

Technology has had an influence on every element of life, including transportation, communication, education, and many more. The safe, efficient transportation of students within the school environment is a challenge faced by higher institutions across the country. The low influx of tricycles and the fixed loading point in school has made student transit unavailable, student has to either go to the loading point or stand and wait for the tricycle to go to the loading point or the student destination.

**1.2 Statement of the Problem**

The unavailability of tricycles within the school is due to how the manual method is structured, in trying to introduce comfort to the student in acquiring tricycles and to that of tricycle drivers in acquiring passengers (students) some problems were found. Currently, Students must go to the loading point to get on a tricycle, they also have to line up for a long time waiting for the loaded tricycle to go and come back, without prior knowledge of how soon they will be back. Students must pay cash when getting on the tricycle with that aside there is also the problem of price indifferences. Tricycle riders can be sitting idle at the loading point while there is a high demand for their services within the school. The stated problem jogged my interest to embark on the project

**1.3 Aim and Objectives of the Study**

The aim is to develop a mobile-based tricycle (Keke) booking system for students at Kaduna polytechnic main campus.

**Objectives**

The objectives of this research work are as follows:

1. Data set used on the application will be generated upon registration on the mobile app
2. Unit and integration testing will be performed to validate the design's effectiveness and efficiency, as well as to guarantee that the functionalities are error-free.
3. Flutter will be employed in building the user interface and ensuring user experience, while Django rest framework will serve as the Restful API for interacting with Django which is employed as backend technology not forgetting the open-source relational database; SqLite3 which will be employed as the database technology.

**2.1 Literature review**

Balba, N. P., Rosas, N. M. F., Drilon, P. J. Z., Fallaria, S. J. F., & Fallaria, J. F. (2019). ISAKAY: Android-Based Booking System for Tri-Bike Operators and Drivers Associated with Cloud-Based Data Analytics. Transportation has aided economic progress from the early days of the industrial revolution by transferring materials, resources, products, and people. In rural areas of the Philippines, "Trikes" or Tri-bikes, a motorcycle coupled with a sidecar, are commonly used to carry people from one location to another. "iSakay" is a Filipino word that means "ride" or "to book a ride". Due to the increasing needs of the commuters in rural areas, ineffectiveness in communication with the drivers has still faced and largely, the difficulty in securing a ride in a tri-bike becomes an issue. The researchers devised the concept of building and developing an Android-based booking system that centralizes the transportation management of tricycles in rural locations around the Philippines. The centralized booking system can mass-produce a dashboard by displaying data analytics via "cloud" as input and direction for future tri-bike management system upgrades and development. The researchers used the waterfall model in the construction of the program, which resulted in a favourable solution for commuters. The functionality, dependability, and accuracy of the systems are tested and assessed, resulting in very simple yet crucial advice to alleviate the common challenges experienced by persons living in rural areas in the Philippines.

Adekola, O.D., Mensah, Y.M., Maitanmi, S.O., Akande, O., Kasali, F.A., Omotunde, A.A., Ajayi, W., & Ajiboye, O.A. (2021). An Online Road Transport Booking System. Road transportation bookings were previously done in transportation terminals over the counter, but with the exponential expansion of e-commerce, this has altered. This research focuses on automating the Road Transportation Booking System so that customers and employees can buy and sell tickets online. The development technologies employed in the development of this research include PHP, CSS, HTML, JavaScript, MYSQL database, and XAMPP server. The research also covers difficulties that consumers and administrators encounter, such as excessive wait times to plan a trip, dangerous environments, and more. The research explores many implementation issues and gives recommendations for successfully integrating an Online Road Transport Booking System. This web portal would contribute to the eventual creation of a fully integrated system that connects transportation firm employees to consumers, employees to other types of transportation providers, employees to companies, and employees to government organizations.

Mohamad, E., Jiga, I. A., Rahmat, R., Azlan, A., Rahman, M. S. A., & Saptari, A. (2019). Online Booking Systems for Managing Queues at The Road Transport Department. In Malaysia, the Road Transport Department (RTD) is one of the public sectors experiencing long wait times at their service counter. Several solutions have been proposed to address this issue, including implementing an e-government service through the official RTD portal and forming other units to separate demand, which also entails the development of other agencies such as myEG and UTC. However, the issue has persisted and has even become one of the most pressing policy challenges confronting the RTD. As a result, the purpose of this research is to suggest an online system for managing queues during service and, as a result, reducing waiting time. To achieve the objectives, several methods were used, including conducting semi-structured interviews, observations, and time studies at RTD Bukit Katil in Melaka, developing the online system with Adobe Dream Weaver, Oracle SQL Developer software, and Adobe Cold Fusion, and validating and verifying the system with usability studies and questionnaires. The first online system is a queue number reservation system. Clients can book their queue number via an online method with this established solution. Furthermore, this system informs clients of the length of their wait so that they can arrive at the counter in time for their allotted service. The second suggestion is to use an online queue booking system. Clients can use this system to schedule appointments with RTD personnel at certain times. This technique also allows the client to arrive and be serviced on time. This system intends to reduce RTD wait times, increase customer happiness, and serve as a model for other government organizations to enhance their services.

Duraisamy, S., & Abuhuraira, J. U. (2018). Android Mobile Application for Online Bus Booking System. Since the advent of information technology, physical labour has become a waste of time and energy, particularly in developed countries. In Malaysia, the manual method is still in use and needs to be improved. The primary reason for not developing a robotized system is the anticipated lack of learning and inventiveness in the information technology industry. The proposed system will serve and continue to act as the organization's global system of communication arrangement with clients. The system enables consumers to book tickets at the touch of a button without having to wait in line or go to the counter. When you register by entering all of the required information, you become a user with full access to the system. The system has several features, such as presenting the bottom of the application by understanding the routes, knowing the price and discount when booking, and providing payment. The system includes an admin section that is responsible for updating most of the information needed for the benefit of the consumers and also allows users to know where each bus is headed as well as the destination.

**3.1 METHODOLOGY**

A comprehensive inquiry such as this is used in the research technique to unearth new facts or information about the current system. The research method used in this study is the primary and secondary source of data collection.

**Primary Source of Information**

This includes data gathered directly or indirectly from target users, with no edits or suggestions from other writers. This main source's material is considered more accurate and credible. As a result, the goal is to incorporate the knowledge gleaned from this source into the project in order to satisfy the criteria. Interviews and observations were used as primary source data collection strategies.

**Secondary Source of Information**

This essentially includes all of the information that someone can receive from existing sources such as books, the internet, case studies, articles, newsletters, and other relevant publications. The resources obtained from the internet in particular were quite relevant; various search engines, particularly Google, made it very easy to find information.

**3.2 Choice of Programming Language**

The proposed design will be implemented using flutter for its user interface (frontend) while Django will be used for the backend programming, Sqlite3 will be used for its database due to its portability, and Django REST Framework will be employed for its REST-full APIs, the combination of the above modern technology forms the technology for this research work.

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