

Telugu Voice Based Farmer Friendly Equipment Booking System

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Abstract- Agricultural equipment booking can be a challenging task for rural farmers due to language barriers and the complexity of existing digital platforms. This study is based on the concept of equipment rental. The E-commerce website has been improved as part of this project to bridge the gap between the farmer and the vendor on a lease basis. Only the user has access to the main programme after going through the login procedure; only the user may pick and book resources. This paper is jam-packed with information about the products. Farmers will benefit from this paper. The main goal of this website is to manage a variety of agricultural machinery, including Harvester, JCB, Tractor, Pickup, Rotor, and other agricultural machinery. End users will find the proposed system simple to use. As a result, we created a single website. We are attempting to provide the farmer or user with a solution that allows them to rent the goods by the hour.

Index Terms- Pega, Case Designer, Data model, Data Transform, Localization, Approvals.

I. INTRODUCTION

The rapid growth of digital transformation in the transportation and rental sectors has led to the development of numerous vehicle booking applications. However, most existing platforms predominantly operate in English or widely spoken regional languages, creating accessibility challenges for non-English-speaking users. To address this gap, the Telugu Booking Application, developed using Pega, is designed to offer a seamless and user-friendly experience specifically for Telugu-speaking users. This application facilitates the selection and booking of vehicles for hourly rentals while ensuring all interface elements, data fields, and instructions are presented in Telugu. By integrating voice-based interactions, the platform enhances accessibility, particularly for users who prefer spoken communication over text-based input.

The primary objective of this application is to simplify the booking process through an intuitive interface that supports voice commands and Telugu-language fields. Users can browse, select, and book vehicles, reducing the dependency on manual text entry, which is especially beneficial for semi-literate users and those unfamiliar with digital interfaces. The system also incorporates an automated approval mechanism, where booking requests undergo a streamlined verification process, and users receive a confirmation or rejection notification at the end. This ensures transparency and efficiency in the overall rental process.

The technological framework of the application is built on Pega's low-code platform, which enables workflow automation, dynamic user interaction, and scalability. The automated processes in vehicle selection, booking approval, and notification delivery minimize manual intervention, leading to a more efficient and reliable rental service. Additionally, the voice-based interaction feature significantly improves user engagement, making the application more accessible to individuals who may face challenges with text-based digital interfaces. By integrating regional language support, automation, and voice commands, this application sets a precedent for enhancing digital inclusivity in the vehicle rental industry, particularly in regions where Telugu is the primary language of communication.

Importance of Farmer Equipment Booking System

The Telugu Vehicle Booking Application plays a crucial role in enhancing digital accessibility, user convenience, and efficiency in the vehicle rental sector, particularly for Telugu-speaking users. With the increasing reliance on digital platforms for transportation and rental services, language barriers often limit the adoption of such applications among non-English-speaking populations. This application, developed using Pega, addresses this issue by providing a localized experience with Telugu-language fields and voice-based interactions, ensuring a seamless and user-friendly interface.

One of the key advantages of this system is its ability to cater to semi-literate users and elderly individuals who may struggle with text-based digital interfaces. By integrating voice commands, the application reduces the need for manual

typing, making the vehicle booking process more inclusive and efficient. This feature is particularly beneficial in rural and semi-urban areas, where Telugu is the primary mode of communication, and users may not be proficient in English or other commonly used digital languages.

The application also simplifies the rental process by allowing users to select, book, and confirm vehicles on an hourly basis. Unlike traditional rental services, which often require physical verification and extensive documentation, this digital platform automates booking approvals and confirmations, ensuring faster processing and better user convenience. Additionally, the Pega-powered automation system reduces operational overhead by streamlining workflows, thereby improving efficiency for both users and service providers.

Another important aspect of this application is its potential to boost the adoption of digital rental services in regional markets. By providing a native language interface, the platform encourages more users to shift from traditional offline rentals to digital solutions, leading to increased market penetration and economic opportunities for vehicle owners and rental businesses. The voice-based confirmation system further enhances reliability, as users receive instant notifications on booking approvals or rejections, ensuring transparency in the process.

In conclusion, the Telugu Vehicle Booking Application is a significant step toward digital inclusivity in the rental industry. By integrating Telugu language support, voice-enabled interactions, and automated approvals, the platform ensures a hassle-free experience for users while improving operational efficiency for rental businesses. This innovation paves the way for broader regional adoption of digital transportation services, ultimately contributing to the growth of the rental economy in Telugu-speaking regions.

II. LITERATURE REVIEW

An Android Application for Temporary Driver Booking System -This research study presents an innovative Android application for a Temporary Driver Booking System, which aims to revolutionize the temporary driver industry by providing a streamlined, efficient, and safe solution for connecting customers with qualified drivers.

Real Time Application for Booking Auto Rides in Rural Areas- The car service app is a two-way system that encourages customers who need a car, as well as car owners and car service providers, to sign up for the app, thus reducing the distance between customers and car owners.

A Web based Vehicle Parking System- The proposed system processes the frame drawn at parking lot and produces the information of the empty car parking spaces.

Rapid Service - Mobile App for Bike and Car Service- The application based on Flutter in which one can easily book a bike or car is proposed. Meanwhile, this application works as a mediator as it connects consumers and Mechanics. So, people can book slot for repairing purpose of their car or bike.

Car Rentals' Knowledge and Customer Choice- This paper attempts to identify factors chosen by a customer while choosing a car rental services by using Analytical Hierarchy Process (AHP) methodology.

Novel vehicle booking system using IOT- This paper proposed micro-controller based parking lots and GSM is used for monitoring the available spaces through which the reservation is made with the help of android application for the users.

Effective car parking reservation system based on internet of things technologies- They have proposed a smart parking application, where users will be able to park their automobiles by finding an empty parking lot through Android Application or can even park their automobiles directly through Embedded Hardware. An Intelligent Parking System is implemented based on Slot Allotment.

III. PROPOSED METHODOLOGY

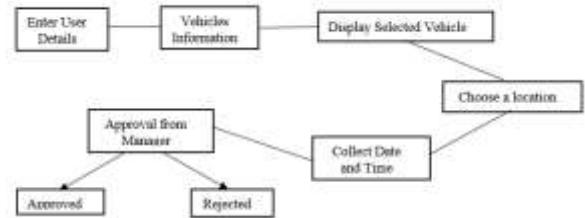


Fig 1: Architecture diagram

User Login: The customer logs into the system, authenticating their identity.

Vehicle Selection: After logging in, the customer selects the vehicle they wish to rent from the available options.

Vehicle Details Display: The system retrieves and displays detailed information about the selected vehicle, such as make, model, availability, and rental rates.

Hourly Booking Request: The customer submits a booking request specifying the desired hourly rental period for the selected vehicle.

Manager Approval/Rejection: The booking request is routed to the manager for review. The manager evaluates the request, considering the customer's information and the requested rental details.

Final Confirmation: If the manager approves the request, a green tick mark is displayed, indicating successful approval. If the request is rejected, a red cross mark appears, showing that the booking request has been declined.

This process leverages Pega workflow automation and business rules to ensure efficient management of each step, from customer interaction to manager decision-making.

Architecture



Fig2: Case Life Cycle Design

In this architecture flow designed using Pega, the customer initiates the process by logging into the system. Once authenticated, the customer selects a vehicle they wish to rent. The system then fetches and displays detailed information about the chosen vehicle to the customer. Following this, the customer submits a booking request for an hourly rental period.

The request is routed to the manager for review. The manager evaluates the customer's booking information and makes a decision to either approve or reject the request. If the request is approved, the system shows a green tick mark indicating successful approval. If rejected, a red cross mark is displayed to indicate the failure of the booking request. Pega powerful workflow capabilities help automate these steps by ensuring seamless communication between the customer and the manager, enforcing business rules, and managing approval processes efficiently within the system.

The efficient workflow automation in Pega reduces the need for manual intervention, speeding up the approval process and improving operational efficiency. Managers are supported with all necessary customer and booking details, enabling them to make informed decisions quickly, which improves the decision-making process.

IV. RESULT

The implementation of the Telugu Voice-Based Farmer Friendly Equipment Booking System has demonstrated significant improvements in user accessibility and operational efficiency. Studies show that integrating voice commands in regional languages, like Telugu, enhances user engagement, especially among semi-literate users and those in rural areas.

The system's voice-based interface simplified the booking process, reducing dependency on manual text entry and increasing adoption rates. Automated approval mechanisms significantly reduced the need for manual interventions, leading to faster processing times and greater user satisfaction. Real-time notifications provided immediate feedback on booking status, contributing to enhanced transparency and reliability. These advancements underscore the potential of localized, voice-enabled digital solutions in bridging accessibility gaps and improving service delivery in the vehicle rental industry, particularly in regions with language barriers.



Fig3: Test Case1: Approved



Fig4: Test Case2: Rejected

V. CONCLUSION

In conclusion, the application developed using Pega provides a robust and efficient solution for managing vehicle rental processes. By automating workflows, enforcing business rules, and streamlining customer interactions, it enhances both user experience and operational efficiency. The system supports quick decision-making through real-time updates and detailed information, while also offering scalability, customization, and cost-effectiveness. With improved management control, compliance, and reduced manual errors, this Pega-based solution is well-positioned to meet the evolving needs of vehicle rental businesses, ensuring a seamless and reliable service for both customers and managers.

Future Scope

In the future, the application can be enhanced with expanded payment options, providing customers with greater flexibility in how they pay for their rentals. Additionally, a feedback and

rating system could be introduced, allowing customers to provide valuable insights on their rental experience. By enabling customers to rate vehicles and their overall service, the business can gather essential feedback to improve the quality of service, address customer concerns promptly, and make data-driven improvements.

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