

CAR DETAILING SYSTEM

Prathamesh Shailendra Gawali
Department of Computer Science,
GH Raisoni University, Amravati, India

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Abstract — This study's goal is to create a booking application that is applied in a car wash. Seeing the rapid development of technology, one of which is the booking application, so many businesspeople take advantage of this booking application, for example, hotel booking applications, ticket bookings, and many more. But some business has not taken advantage of this booking application, one of which is the car wash business. Most car wash businesses still use manual methods in the process, from recording customer data and payments. In using this manual method, many problems occur. For example, recording incorrect data and counterfeiting money. Therefore, a study was conducted using the system development method, namely Waterfall. The waterfall method includes Analysis, Design, Coding, and Testing. The results obtained from this study are a Car Wash booking application utilizing the IoT topic, which is expected to help problems in the car wash business

Keywords: Booking Car Wash; Car Wash; Waterfall; IoT

I. INTRODUCTION

The car detailing desktop application, developed using the Tkinter framework in Python and integrated with a MySQL database, represents a powerful and user-friendly solution tailored to the specific needs of the car detailing industry. Tkinter, as a standard GUI (Graphical User Interface) toolkit for Python, provides a seamless and visually appealing interface, making it an ideal choice for designing the application's user interactions.

Leveraging the simplicity and versatility of Tkinter, the application ensures an intuitive user experience, facilitating easy navigation through its various features. The integration with MySQL as the backend database management system ensures efficient data storage, retrieval, and management, thereby enhancing the overall performance and scalability of the application. This introductory synergy of Tkinter and MySQL sets the stage for a robust and responsive car detailing desktop application, promising a streamlined experience for both users and administrators alike.

The utilization of Tkinter in Python for the development of the car detailing desktop application allows for the creation of a visually appealing and cross-platform user interface. Tkinter's simplicity and ease of use enable the crafting of interactive and responsive elements, ensuring a seamless interaction between the user and the application.

With Python as the programming language, developers can capitalize on its readability and versatility, streamlining the coding process and fostering maintainability.

II. RELATED WORK

In olden days the transaction took place are recorded and maintain on paper. So it becomes very difficult to maintain the records, moreover the calculation are done manually this would creates mistakes and errors. This generates the result less accurate and less efficient and unreliable.

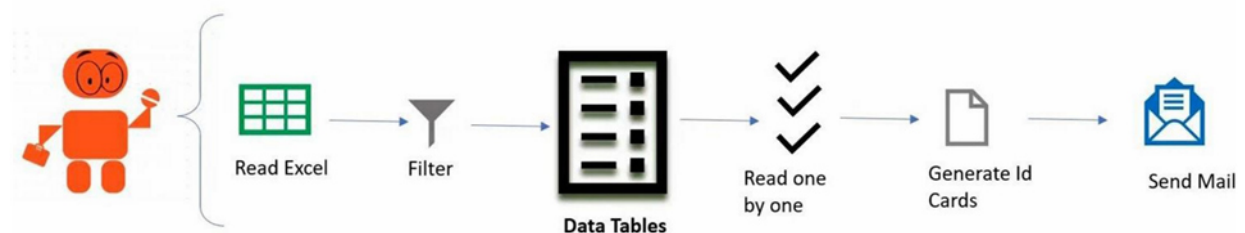
All such limitation have been overcomes under this project. In this project the information of new suppliers can be added, deleted, saved, updated by using the various command button provided to the user. So it becomes easier for the user to maintain the records. Similar provisions have been made for other detail option such as departments details, employee details etc.

III. PROPOSED WORK

In this paper, The proposed system aims to automate the process of generating identity cards using the Robotic Enterprise (RE) Framework in UiPath. By leveraging the capabilities of UiPath and the structure provided by the RE Framework, the system enables organizations to streamline the identity card generation process, improve accuracy, and enhance operational efficiency.

The first step in the proposed methodology is to conduct a thorough requirement analysis. This involves understanding the specific requirements and constraints of the identity card generation process. It includes identifying data sources, validation rules, template design specifications, and any other relevant considerations.

The researchers used the Online Transaction Processing (OTP) model. Figure 4 shows that students used their personal owned or borrowed devices that have an access to the internet browser and the world-wide-web. The role system administrator is to monitor the flow of the transaction.



The proposed methodology outlines the steps involved in generating identity cards in the RE Framework using UiPath. By following this structured approach, organizations can automate and streamline the identity card generation process, ensuring data accuracy, scalability, and operational excellence.

UiPath's capabilities, along with the robustness of the RE Framework, provide a powerful combination for efficient and reliable automation solutions

IV. PROPOSED RESEARCH MODEL

Business Process Model Nation (BPMN)

The running business process for washing is modeled using the nation's business process model (BPMN) (Pufahl et al., 2022). One of the business processes that is exemplified in the process of booking a car wash. More details can be seen in Figure. 5.

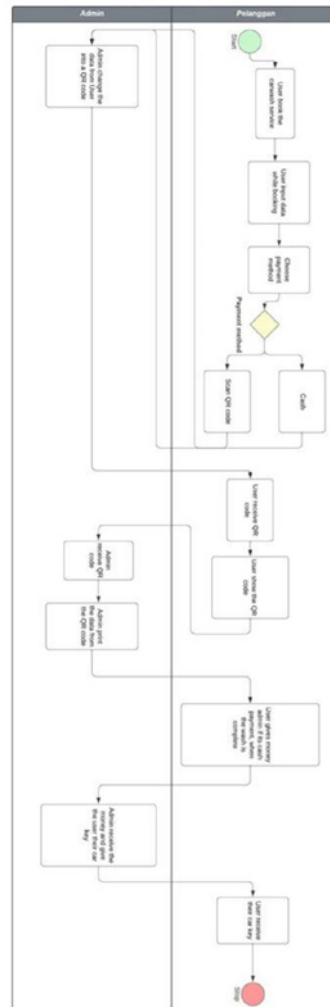


Figure 5. Business Process Model Nation (BPMN)

3.2 Use Case Diagram

Each function in the system is a process that is technically carried out by the actors involved in the relationship between the functional and the actor is described by a use case diagram. The use case diagram of this application design can be seen in Figure. 6.

Based on the use case diagram of the application design in Figure 5, it is found that there are two actors involved in the application, namely admin and customer. Each actor is required to log in first before using the system. There are four functions in the web application that have a relationship with the function of each. For the admin, there are eleven functions, and the customer has three functional. Functionality in this web application was chosen based on the needs and effectiveness of the system.

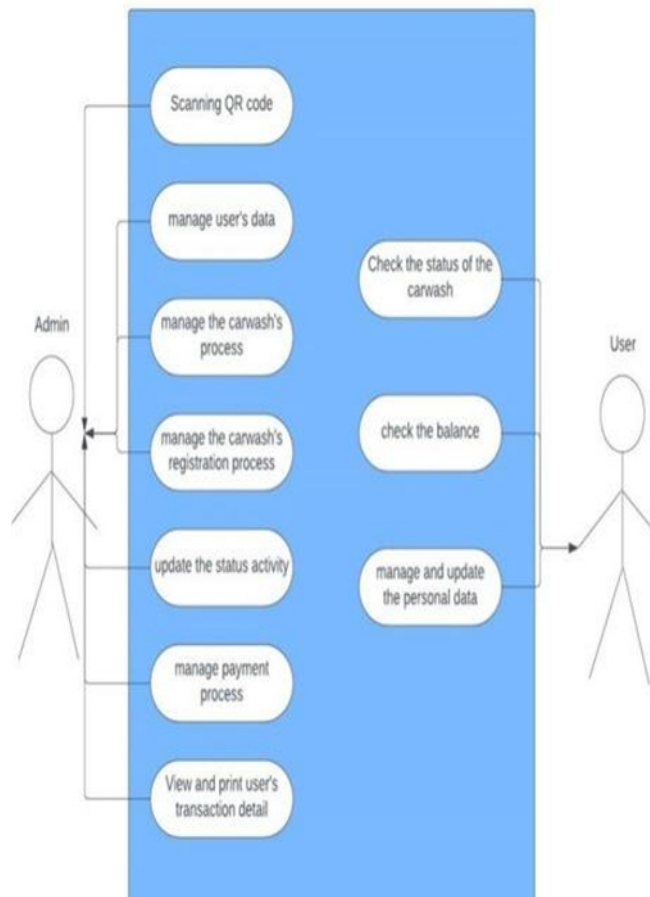


Figure 6. Use Case Diagram

3.3 User Interface Application

There is a screenshot from the application. Figure 7 is the main menu page from the application. There are a few buttons that can be pressed with their respective functions.

Figure 8 above is the admin menu page from the application. In this menu, all customers who have used this application to order then order will go to the admin page, which will be processed by the admin.

Figure 9 is the Login menu page from the application. This page is useful for users or customers who want to enter the application. That way, customers can try the application.

Figure 10 is the Registration menu page from the application. This page is useful for customers or users to create an account for login.

Figure 11 is the Registration menu page from the application. This page is useful to customers or users who want to book a car wash. Users must fill in all the available fields, so the order is successful.

Figure 12 is the Registration menu page from the application. This page is useful for customers or users to check out the QR code, which is where the QR code is useful for proof that the user has used the application for booking.

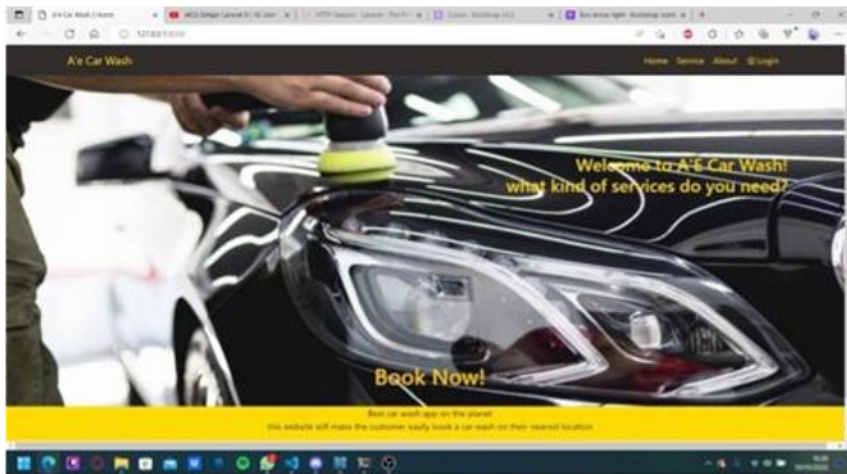


Figure 7. Main Menu

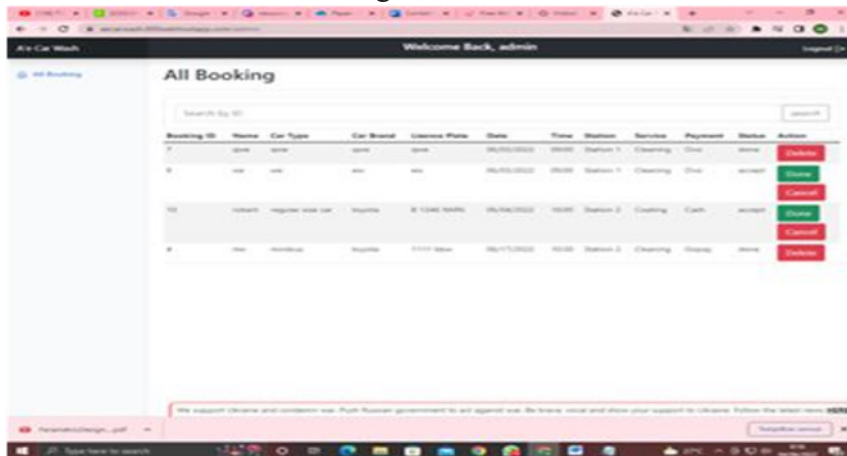


Figure 8. Admin Menu



Figure 9. Login Menu

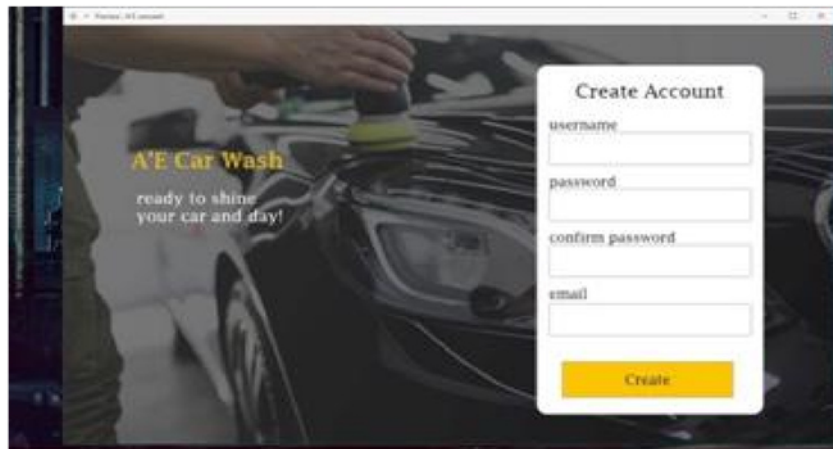


Figure 10. Registration Menu

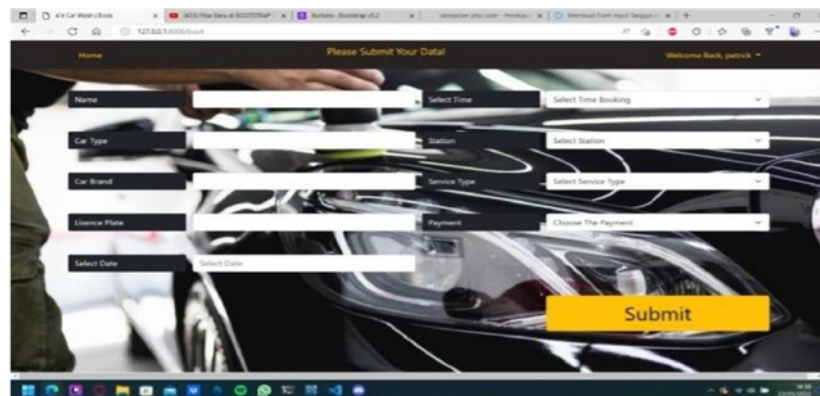


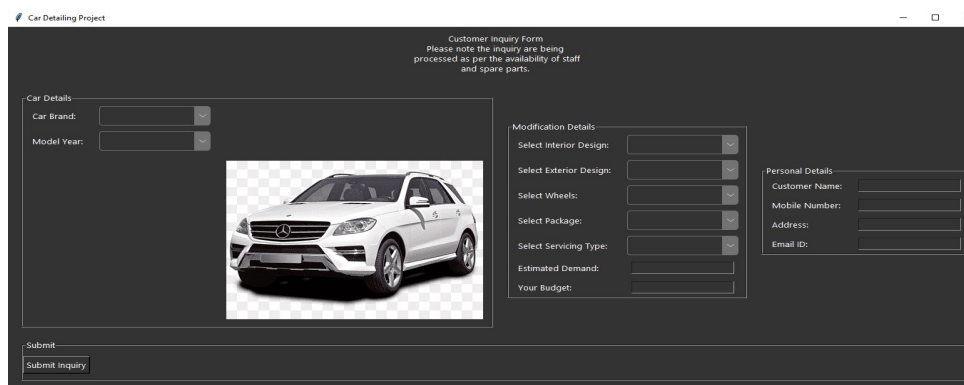
Figure 11. Booking Menu

V. PERFORMANCE EVALUATION

Implementation phase is mainly concerned with user training, site preparations & file conversions. It also involves final testing of the system. During Implementation the components build during development are put into operational use. Brief Reference of the points that should be addressed during implementation:

- Writing, testing, Debugging & Documenting program.
- Converting data from the old to new system.
- Giving training to user about how to operate the system.
- Developing operating procedures for the computer center staff.
- Establishing a maintenance procedure to repair & Enhance the system.
- Completing system Documentation.
- Reviewing the administrative plan, personnel requirement plan, and hardware plan.

VI. RESULT ANALYSIS



This module handles user authentication and authorization. It allows administrators or authorized personnel to log in to the system securely.

Data Management Module:

The data management module is responsible for managing information. It provides functionality to input and maintain details such as other relevant information.

Inquiry Module:

Here user can input the car details and fill the inquiry form for same. Further data is stored in the database.

View Module:

The view module is used for the viewing the existing modules.

CONCLUSION

In conclusion, the Car Detailing Desktop Application Project represents a comprehensive and innovative solution designed to meet the specific needs of the car detailing industry. Through the integration of Tkinter in Python and MySQL as the backend database, we have successfully developed a user-friendly interface coupled with robust data management capabilities. The application's features, ranging from appointment scheduling to real-time updates and reporting functionalities, aim to streamline and enhance the overall car detailing experience for users. The careful consideration given to security measures, such as user authentication and data validation, ensures the confidentiality and integrity of the information stored within the system.

This website was created to make customers easier to book car wash services from anywhere. Because we create it with the database so the order data/transaction details can be easily accessed by users. This website can prevent customers from long queues during the car wash process. Because users can check the availability of date, time, and service stations. Furthermore, our team would like to develop this application into a mobile app.

VII. FUTURE SCOPE

The Car Detailing Desktop Application exhibits immense potential for further expansion and enhancement to meet the evolving demands of the car detailing industry. Future iterations of the project can consider the following avenues for development: Extend the application's reach by developing a mobile version, allowing users to access and manage car detailing information on-the-go. This can involve leveraging frameworks like Kivy or incorporating responsive design principles for cross-platform functionality. : Explore the integration of Internet of Things (IoT) devices within the car detailing process. This could involve incorporating sensors to capture real-time data about vehicle

conditions or integrating with smart car accessories for a more comprehensive detailing experience. Implement machine learning algorithms to analyze historical data and predict future trends. This can assist in optimizing scheduling, resource allocation, and identifying patterns that contribute to improved decision-making within the car detailing business.

VIII. REFERENCES

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