

Beautex : A Salon/Parlour Management System

1st Althaf Rahman A V
dept. Computer Science Engineering
Eranad Knowledge City
Malappuram, India

2nd Fathima Najwa K
dept. Computer Science Engineering
Eranad Knowledge City
Malappuram, India

3rd Jinsila P
dept. Computer Science Engineering
Eranad Knowledge City
Malappuram, India

4th Muhammed Nafih P
dept. Computer Science Engineering
Eranad Knowledge City
Malappuram, India

5th Dr. Steffy Maria Joseph
dept. Computer Science Engineering
Eranad Knowledge City
Malappuram, India

6th Anu KS
dept. Computer Science Engineering
Eranad Knowledge City
Malappuram, India

Abstract—This paper introduces Beautex - a smart system made for salons and parlours that runs on both web and mobile devices, aiming to make daily tasks smoother while boosting how customers engage. Instead of locking features behind sign-ups, people can freely check out local spots, what services they offer, and how much things cost. Logging in only kicks in when booking a slot, which needs at least half the price paid upfront; going all-in early gives extra built-in rewards setup. The customer side helps users find services easily, see package deals, get auto alerts for appointments, while feedback only shows up after a real booking. Different ways to pay like scanning a code at the shop keep payments clear and smooth. On top of that, people can check out beauty items suggested by the salon, order them straight from the app, then grab an e-invoice right away, giving salons another way to earn. From day-to-day admin tasks, Beautex gives salon head one main screen to check money flow, track spending, keep tabs on stock, understand client habits, set staff shifts while also helping hire new team members. Instead of guessing, owners get smart tools that support quick choices plus big-picture strategy. A chatbot run by AI takes care of booking requests and answers common questions without delay. Coming updates will let salons handle refunds directly, launch an app for iPhones, even show clients how hairstyles might look using artificial intelligence making the project ready to grow alongside changing needs.

I. INTRODUCTION

Beautex is a web and mobile-based salon/parlour management system designed to simplify salon operations and improve customer experience through a digital platform. It allows users to explore salon locations, view services, compare prices, and book appointments with secure online payments. A loyalty-based pre-payment system encourages customer engagement and trust. For salon administrators, the system provides tools for financial tracking, analytics, staff scheduling, and recruitment through a centralized dashboard. An AI-powered chatbot supports quick communication and user assistance. Overall, Beautex offers a modern, efficient, and customer-centric solution that transforms traditional salon management into a data-driven and streamlined process.

II. SURVEY METHODOLOGY

To understand the challenges faced in traditional salon operations and to identify the need for a digital solution, a survey-based research methodology was used. The research methodology was based on analyzing user experience with traditional salon operations and identifying challenges faced in traditional salon operations.

The research was based on a survey that included different groups of users, such as salon customers, salon owners, and salon employees. The data was collected using structured questionnaires created using online tools. The questionnaires included multiple-choice questions as well as Likert-scale questions to measure user experience with traditional salon operations.

The research also included questions regarding user preferences for features such as online bookings, price comparisons, digital payments, service reviews, and automated reminders. Additionally, questions were included to identify challenges faced by salon owners, such as scheduling issues, financial issues, and customer management issues.

The data was analyzed using descriptive statistics to identify common patterns. The results revealed a strong need for a centralized salon management platform to address challenges faced during traditional salon operations.

III. LITERATURE REVIEW

In recent years, various digital systems have been proposed to improve the efficiency of salon management and booking processes. In a conventional salon management system, a manual booking system is used. Due to such a system, conflicts and inefficiency are created. In order to avoid these conflicts and inefficiencies, various digital platforms and mobile-based applications have been proposed. In the following section, various important research works associated with salon management systems are discussed.

A. Salon Management System

A research on Salon Management Systems was done, which proposed a system to integrate appointment scheduling, customer management, service management, and payment management into a single system. The proposed system would enable the owner of the salon to manage the customers, the employees, and the inventory in an efficient manner. This would enable the business to run more efficiently.

The research on the Salon Management System has also stated that the digital management systems help the business to keep a record of the financial data of the business. It has also stated that the digital management systems enable the business to prepare analytical reports. This would enable the business to understand the growth of the business and the customers, which would help the business to run more efficiently.

B. Web-Based Salon Booking System

Another study focused on the development of a web-based salon management system that can connect customers and salons through the Internet. The system allows customers to access various salons and services provided by the salons and the prices of the services before making appointments.

The proposed system can save customers from the hassle of booking appointments manually and reduce paperwork. Customers can make appointments based on the available time slots provided in the system, which can reduce the waiting time for the customers and increase the efficiency of the services provided in the salons.

C. Android-Based Salon Booking Application

The rapid growth of smartphone use has led researchers to create mobile-based solutions for service management in the beauty industry. One study focused on developing an Android-based salon booking app to improve efficiency and customer satisfaction. The research aimed to solve common issues that salons encounter with manual booking systems, such as long wait times, scheduling conflicts, and inaccurate customer records. The app was developed using Flutter, a mobile development framework that lets developers create responsive and interactive mobile applications with a single codebase. Flutter allows for the design of user-friendly interfaces that work well on different mobile platforms. For backend data management, the system used Firebase, which offers real-time database services, secure authentication, and cloud storage. This combination of technologies allows for real-time synchronization of booking schedules and customer information. The app has several main features, such as user registration, secure login authentication, appointment booking, service scheduling, and customer data management. Customers can browse available salon services, choose preferred time slots, and book appointments directly through the app. At the same time, salon staff can access real-time booking updates, helping them manage schedules better and avoid double bookings. Testing the app showed significant improvements in operational efficiency. The system reduced manual errors in scheduling and cut down wait times for customers. Additionally, the real-time

data synchronization provided by Firebase ensured that both customers and salon staff could access updated information instantly. The research found that using mobile-based booking systems can greatly improve the customer experience while enhancing the management of salon businesses.

D. Mobile-Based Salon Reservation System

Another important study looked into creating a mobile-based salon reservation system to make booking beauty services easier. Traditional booking methods often require customers to visit salons in person or contact staff via phone calls or messaging apps. This can be inconvenient and take a lot of time. The new reservation system was designed to give customers a simple and efficient way to schedule salon services through a mobile app. The system has two main types of users: customers and salon managers. Customers can register and log into the app to access features like browsing available services, choosing preferred treatments, and making appointments. Once logged in, customers can enter their personal information, service preferences, and contact details to finish the reservation process. The system checks this information before confirming the booking. Salon managers are responsible for handling customer bookings and managing service schedules. The system keeps all booking information in a centralized database. This setup helps salon staff track reservations, update service availability, and efficiently manage customer records. Centralized data storage improves coordination among salon employees and keeps appointment schedules organized and current.

The system also includes features for customer account management, service catalog display, reservation history tracking, and administrative reporting tools. These features help salon managers track business performance and understand customer booking trends. Testing the system showed that the mobile reservation platform greatly improved booking efficiency and customer convenience. Customers could schedule services without waiting in line, while salon managers gained better organization in scheduling and managing customer data. The study concluded that mobile reservation systems are key to modernizing salon service management and improving overall service quality.

E. AI-Based Beauty Salon Business Analysis

Recent advancements in artificial intelligence have created new chances for improving business management in the beauty industry. One study looked into how Artificial Neural Networks (ANN) can analyze customer behavior and service demand in beauty salons. The main goal of the research was to create a data-driven model that predicts service demand and supports salon owners in making smart business decisions. The study analyzed customer data from a beauty salon group that provided three main services: makeup, hair treatment, and facial care. The researchers used historical data on customer visits to find patterns in service usage and preferences. By using machine learning techniques, specifically the Multi-Layer Perceptron (MLP) neural network, the system mod-

eled complex relationships between customer behavior and service demand. During training, the neural network employed the Levenberg-Marquardt backpropagation algorithm. This algorithm is commonly used in optimizing neural networks because it achieves fast convergence and high prediction accuracy. The system underwent training with multiple hidden layers and several iterations to boost prediction accuracy. The study's results showed that the ANN-based model could accurately predict customer demand for various salon services. Performance metrics like Mean Squared Error (MSE), Root Mean Squared Error (RMSE), and Mean Absolute Error (MAE) indicated that the model made highly reliable predictions. By analyzing these predictions, salon owners can better understand which services are most popular and adjust their business strategies accordingly. The research emphasized the value of integrating artificial intelligence into salon management systems. AI-driven analytics can assist salon owners in predicting future demand, optimizing resource use, and creating targeted marketing strategies. These intelligent systems also allow businesses to offer more personalized services based on customer preferences and behavior patterns.

From the reviewed studies, it is clear that several researchers have suggested digital solutions to improve salon operations and customer service. Web-based salon management systems and mobile applications have been created to automate appointment scheduling, manage customer data, and cut down waiting times. Mobile booking apps that use technologies like Flutter and Firebase have further improved real-time scheduling and service access. Recent studies have also looked into using Artificial Intelligence to understand customer behavior and predict service demand in beauty salons.

However, most existing systems mainly focus on basic appointment booking and customer management. Many of these systems do not have useful features like integrated payment systems, loyalty rewards, smart customer interaction tools, and detailed analytics dashboards for salon owners. Also, some systems only offer either web-based or mobile-based solutions rather than a combined platform.

To tackle these issues, the proposed Beautex Salon/Parlour Management System plans to create a complete digital platform that combines salon discovery, service comparison, online booking, secure payment options, loyalty rewards, AI chatbot support, and a management dashboard for salon owners. This all-in-one system is expected to improve efficiency, boost customer convenience, and aid data-driven decision-making for salon businesses.

IV. CRITICAL ANALYSIS AND SYNTHESIS

When you look at how most salons manage things right now, it's pretty clear that a lot of places are still stuck with basic manual tools notebooks, paper registers, or simple Excel files. That's messy. People end up double-booked, customer info goes missing, and service records don't always match up. Staff struggle during busy hours; there are long lines, and resources aren't used well. All this adds up to frustrated clients and a salon that runs less smoothly.

Some modern salon apps and digital booking tools exist, but honestly, most just make it easier to book an appointment online. They help cut down the wait and streamline reservations, sure. But that's about it. They don't offer much beyond the basics. Salon owners need more — things like built-in financial tracking, automated payments, loyalty rewards, or analytics to see how their business is doing. Many platforms also don't allow salons to interact much with customers or answer simple questions automatically. Another big problem? Systems often aren't all in one place. Customers might book appointments online, but salon owners end up juggling different tools for schedules, payments, and customer records. That makes everything harder to run and wastes time.

That's where the Beautex Salon/Parlour Management System comes in. It's a complete platform, designed to cover everything both customers and owners need. With Beautex, users can find salons nearby, look through the services, compare prices, and book appointments easily. Payments are processed securely and upfront, so there are fewer last-minute cancellations.

Beautex goes further. It has loyalty programs, feedback and review features, staff scheduling, and financial dashboards. Salon owners can see how their business is doing at a glance and find out what customers like. Managing employees is simpler, too. Plus, there's an AI-powered chatbot built in, so customers get quick answers to their questions and help with the booking process without staff needing to step in every time. By bringing all these tools together in one easy-to-use platform, Beautex solves the usual headaches and sets salons up for smoother operations and happier customers. Everything's more efficient, easier to track, and more transparent — so salon owners can actually focus on growing their business instead of untangling messy systems.

V. CONCLUSION AND FUTURE SCOPE

The project named Beautex: A Salon/Parlour Management System was a very successful demonstration of applying digital technology to aucte the modern needs of the salon industry and customer relationship management. This system aims at providing a single digital platform where users can find their nearby salon, view services variety, compare prices and schedule appointments. In conventional salon management, the system has to be manually maintained for each customer transaction and the other operational activities involved. Automating these process also helps in maintaining the operational efficiency and lack of scheduling problems thereby coupled with the convenience of the customers. The practical user interfaces and designing layout of the system have increased the usability of this platform among the customer, owners and senior managers. The platform has been designed to create an easy, transparent and complete service management system for the user by combining numerous features in one single platform. The customer is given the ability to search for the services of the salons, book appointments, pay in the way that convenience him and rate salon services. The business owner can manage and view his dashboard for the booking

appointments, credit card directions, business reports, salon and customer database, user ratings and calendar management. Finally, behlex is utilizing an AI chatbot to beautex to support both customer and business users. AI chat bot brings a smart-phone experience to users so they can get booking tutorials, ask common salon questions and manage processes with a simple call.

There are many possibilities, which can be further explored and improved using the Beautex platform in future. Beautex, using more sophisticated artificial intelligence techniques, can analyze customer behavior and recommend customized services to the respective customers, based on the user's preferences, booking history and other factors. Beautex can be enabled with a hairstyle / beauty preview via using a sophisticated Artificial Intelligence is similar to 'try-before-you-buy' concept which is common in shopping. The site can also be enhanced to provide support for multimedia content, provide analytics dashboard and Integration with external systems (payment gateways, marketing equipments, social media links etc.). In addition, subsequent versions of the system can be better integrated with other third-party platforms to enable multi-language, enhanced accessibility, and cross-platform mobile software (including iOS). Moreover, with the application of more sophisticated data analysis and the use of machine learning algorithms, the Beautex platform can be further enhanced to be more intelligent and predictive in terms of estimating customer demand, scheduling staff, and otherwise managing salon resources. With continuous development, the Beautex medium can become a total, scalable digital environment that caters to supermarket-based salon chains for enterprise growth as well as a more customized, seamless customer experience.

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