JETIR.ORG ISSN: 2349-5162 | ESTD Year : 2014 | Monthly Issue
JOURNAL OF EMERGING TECHNOLOGIES AND INNOVATIVE RESEARCH (JETIR)
An International Scholarly Open Access, Peer-reviewed, Refereed Journal

MOBILE APPLICATION FOR ICECREAM PARLOUR

Dr. Rajendra Chadalawada[*1], Chakkilala Satish[2], Bynaboina Bhavya Praneeth Yadav[3], Bijjamula Puneeth Sai[4], Bodimalla Nithin Reddy[5]

Professor & HOD[*1], UG Scholars[2,3,4,5]
Department of Computer Science and Engineering[1,2,3,4,5&6], Narayana Engineering College, Nellore, Andhra Pradesh, India.

Abstract: *The "Mobile Application for Ice Cream Parlor" is designed to make life sweeter for both customers and ice cream shop owners. It's a handy mobile solution that aims to boost customer engagement and streamline the day-to-day operations of ice cream parlors. For customers, the app is super easy to use. You can sign up with your mobile number, verify your identity with a one-time password (OTP), and set up a secure password for future logins. Once you're in, you can fill out your personal details and address, making it quick and easy to place orders. The home page is vibrant and dynamic, showcasing different ice cream categories and products. You can browse through and add your favorites to your cart. After placing an order, you'll receive a coupon for discounts on your next purchase, encouraging you to come back for more. Plus, you'll get real-time updates on your order status, so you're always in the loop. On the business side, the app includes a powerful admin panel. Managers can receive and manage orders, update order statuses, and keep an eye on user and sales information with an intuitive dashboard. They can also add new products and send notifications to users about promotions, updates, or new offerings.*

Key Words*: Mobile application, Android, Product Display, Order History, Coupon Management, Profile Management, User Engagement.*

1. INTRODUCTION

The Ice Cream Parlor app is a comprehensive Android application designed to enhance the user experience for customers and improve business operations for parlor owners. This paper presents the development process, key features, and system implementation of the application. The Ice Cream Parlor app addresses common challenges in traditional order management systems by providing functionalities such as product and category display, order placement, and status tracking for customers, and an intuitive dashboard for owners to manage products, track orders, and send notifications. The application leverages Java and Kotlin for development, utilizes an SQL database for backend storage, and is built using Android Studio. Through systematic testing and integration, the Ice Cream Parlor app ensures data accuracy, real-time updates, and user-friendly interaction, making it an effective solution for modern business needs in the ice cream industry. Future enhancements aim to incorporate personalized recommendations, augmented reality features, machine learning for predictive analytics, and broader integration capabilities.

1.1 Problem statement

The "Mobile Application for Ice Cream Parlor" project is designed to solve common problems in the ice cream business, focusing on making things better for customers, boosting efficiency, and helping the business grow. Traditional ordering methods can be inconvenient and hard to access, making it tough to keep customers coming back. Manual order management is often inefficient, and many parlors lack comprehensive administrative tools. Our app aims to change all that. It offers a user-friendly platform where customers can easily place orders, enjoy a coupon system to encourage repeat business, and benefit from real-time order updates. For parlor owners, it streamlines order management and provides an intuitive admin dashboard, all while ensuring robust security. By integrating these features, the project aims to transform how ice cream

parlors interact with their customers and manage their operations. The end goal is to boost customer satisfaction and drive business success in today's competitive market.

1.2 Objective of the paper

The main goal of the "Mobile Application for Ice Cream Parlor" is to enhance the operations and profitability of ice cream parlor owners. This involves creating a mobile app that simplifies order management, optimizes inventory control, handles coupon management, and provides valuable insights through sales analytics. By giving administrators powerful tools like an intuitive admin dashboard, efficient communication channels, and real-time order tracking, the app aims to improve decision-making and operational efficiency. In the end, the aim is to boost revenue, customer satisfaction, and overall business growth for ice cream parlors by taking full advantage of modern mobile technology.

2. EXISTING WORK

In many ice cream parlors today, traditional methods still dominate order management and inventory control, often resulting in inefficiencies and errors. Orders are usually taken by hand, leading to mistakes and delays, while inventory is tracked with spreadsheets, making it hard to keep accurate stock levels. Customer engagement is minimal, typically ending at the point of sale, which means missed opportunities for building relationships and promoting offers. The technological infrastructure is often quite basic, without advanced tools like mobile apps or CRM software.

Here are some of the main challenges:

Inefficiency and Errors: Manual order-taking and inventory management can lead to mistakes, miscommunication, and discrepancies in stock counts. These issues can cause delays, increase costs, and result in unhappy customers.

Limited Scalability: As the business grows, manual processes become more time-consuming and less efficient. Without automation, it’s hard for ice cream parlors to handle more orders or expand their operations smoothly.

Lack of Real-Time Insights: Without digital systems, ice cream parlors don’t have real-time data on sales trends, inventory levels, or customer preferences. This means decisions are often made reactively instead of proactively.

Poor Customer Engagement: With manual processes, it’s tough to engage customers beyond the point of sale. Ice cream parlors might find it hard to build relationships, collect feedback, or effectively promote special offers and loyalty programs.

Security Risks: Keeping records manually can pose security risks, such as losing or having sensitive customer or business data stolen. Without strong data security measures, ice cream parlors are vulnerable to breaches and data loss.

Limited Technological Integration: Many ice cream parlors have basic technological setups and lack integration with advanced solutions like mobile apps or CRM software. This limits their ability to enhance customer experiences, streamline operations, and drive business growth.

Addressing these issues offers a chance to develop a mobile app that improves operational efficiency, boosts customer engagement, and fosters business growth in the ice cream industry.

3. PROPOSED SYSTEM

The new mobile app for the ice cream parlor is designed to be user-friendly and convenient. Customers can easily sign up using their mobile numbers, verify their identity with a one-time password (OTP), and set up a secure password. Once registered, they can browse through different ice cream categories and products, add their favorite items to the cart, and place orders. After placing an order, they receive coupons for future use,

encouraging them to come back for more.

For the parlor owners, there's an admin panel that makes managing orders, updating products, and sending notifications to customers a breeze. The app is all about engaging customers with coupons and providing efficient tools for administrators, aiming to boost customer retention and drive business growth for the ice cream parlor.

Implementation

Requirements Analysis and System Design

Objectives: Clearly define the requirements and scope of the project, ensuring all stakeholder needs are met.

Activities:

Conduct stakeholder interviews and surveys to gather detailed requirements.

Create detailed use cases and user stories.

Develop high-level system architecture, database schema, and user interface designs.

Development of Core Modules

Parlor Owner Module:

Features: Add and manage products, view customer details and order history, send special offers and notifications.

Activities: Implement product management, order management, and customer engagement functionalities.

Customer Module:

Features: Secure login, profile management, browse products, place orders, track order status, receive rewards and discounts.

Activities:

Develop customer authentication, profile update, product browsing, order placement, and reward system features.

Integration and Data Management

Objectives: Ensure seamless interaction and data flow between the parlor owner and customer modules.

Activities:

- Develop and implement communication between the frontend and backend.
- Ensure data consistency and integrity through proper validation and error handling.
- Set up and configure the firebase database to handle data storage and retrieval efficiently.

User Interface and Experience Enhancement

Objectives: Create an intuitive, responsive, and user-friendly interface for all users.

Activities:

- Design and implement responsive user interfaces for parlor owners and customers.
- Ensure the application is accessible and easy to navigate.
- Incorporate real-time updates for product availability, order status, and special offers.

Testing and Quality Assurance

Objectives: Validate the functionality, performance, and security of the application.

Activities:

- Conduct unit testing for individual components to ensure they function correctly.
- Perform integration testing to validate interactions between modules.
- Conduct system testing to verify the application meets all specified requirements.
- Facilitate User Acceptance Testing (UAT) to gather feedback from actual users and make necessary adjustments.

Deployment and Training

Objectives: Deploy the application in a production environment and ensure users are adequately trained.

Activities:

- Prepare the application for release, ensuring it is optimized for performance and security.
- Deploy the SQL database on a reliable cloud platform or local server as required.
- Provide comprehensive training sessions and create user manuals and technical documentation for parlor owners and customers.

4. EXPERIMENTAL RESULTS

This is the login screen of our Rumble application. Login screen is a user interface in an application where users enter their credentials, typically a username and password, to gain access to the application's features and data. It serves as a security measure to ensure that only authorized users can use the application. Here users enters their login credentials to gain access to their defined application's functions.

Fig: 4.1 Login screen

Fig: 4.2 Registration screen

- The image showcases a mobile phone interface for an ice cream app registration page. At the top of the page, there is likely a welcoming message that greets users and encourages them to proceed with the registration process.
- The page features two input fields: one for users to enter their mobile phone number and another for them to input the One-Time Password (OTP) received via SMS. These fields are essential for user verification during the registration process.
- Below the input fields, there is a prominent yellow button labeled "Send OTP," which users can tap to receive the verification code.
- Additionally, at the bottom of the page, there is an option for existing users, indicated by the text "Already a member?" followed by a "Sign in" link, allowing them to bypass registration and log in directly.
- Overall, this registration page is designed to streamline the user onboarding process for the ice cream app, making it easy for new users to register and for existing users to sign in

The image displays a mobile application screen titled “Address.” It includes several input fields for user information:

Name: Users can enter their full name.
Phone: Users provide their mobile phone number.
State: Users select their state from a dropdown or enter it manually.
Pin code: Users input their postal code.
Area: Users specify their local area.
Landmark: An optional field for notable landmarks.
Town/City: Users enter the name of their town or city. At the bottom, there’s a yellow button labelled “Save.”

Fig: 4.3 Address section

The image displays the user home screen of an Android application for ice creams. Let’s break down the key elements:

Header and Categories:
At the top, there are four circular icons representing different ice cream categories: Cone, Cup, Bar, and Cream Cakes.
These icons likely serve as navigation to explore specific types of ice cream products.

Ice Cream Menu:
The main part of the screen features a menu with images and names of various ice cream options.
Each item has an accompanying image showing the ice cream product.
Visible options include:
“Strawberry cone double layer” priced at ₹25
“Chocolate cone” priced at ₹30
“Mango cone” priced at ₹25
“Vanilla cone” priced at ₹30
Partially visible option: “Red velvet cheese rolled cone” priced at ₹58

User Interaction:
Users can browse and select from the available ice cream flavors.
The prices are displayed in Indian Rupees (₹).

Fig: 4.4 User Home page

Fig: 4.5 Category Screen

The image displays the category screen of your ice cream app. Let's break down the key elements:

Title and Categories:
At the top, there is a title that reads "All Categories."
Below the title, there are six categories represented by icons and labels:
Cone: Likely includes various cone-based ice cream flavors.
Cup: Represents cup-based ice cream options.
Bar: Indicates ice cream bars or popsicles.
Specials: May include unique or seasonal ice cream offerings.
Ice Cream Cakes: Likely features ice cream cakes or desserts.
Milk Shakes: Represents milkshake flavors.
Visual Representation:
Each category has an accompanying image that visually represents the type of ice cream product offered.
The layout is clean, with two columns for the categories.
User Interaction:
Users can explore different ice cream categories by tapping on the icons or labels.
This screen serves as a convenient way for users to navigate through the available ice cream options.

The image displays the shopping cart screen of your ice cream app. Let's break down the key elements:

Ice Cream Selection:
The top part of the screen likely shows an ice cream product (a "strawberry cone double layer") along with its price (₹25).
Users can add this item to their cart.
Quantity and Stock Information:
Below the product, there are options to increase or decrease the quantity.
The screen indicates that there are 38 items left in stock.
Coupon Section:
A red coupon section is visible, offering a specific deal: "15% off on a minimum purchase of Rs. 550."
The coupon expires on 30th October 2024.
Order Placement:
At the bottom of the screen, there's a prominent purple button labeled "Place Order."
Users can proceed to finalize their order.
Overall, this cart screen allows users to review their selected items, apply discounts, and place their ice cream order

Fig: 4.6 Category Screen

Fig: 4.7 Admin Home Screen

The image displays an admin dashboard screen for an ice cream app. Let's break down the key elements:

Title and Categories:
At the top, there is a title that reads "Rumble."
Below the title, there are six icons representing different categories of information:
No. of Users: Likely indicates user engagement metrics.
No. of Products: Represents the product inventory.
Earnings: Displays financial performance.
Ordered: Indicates the number of pending orders.
Shipping: Represents orders in transit.
Delivered: Shows completed orders.

Icons and Labels:
Each icon corresponds to a specific aspect of business operations.
The labels next to the icons describe their function within the dashboard.

Business Insights:
Admins can quickly assess user activity, product availability, revenue, and order status.
The clean design allows efficient monitoring and decision-making.

The screen represents the sales data of the app. It consists of:

Item Sales
Represented in bar graph
Represents the no.of items sold per day

Category sales
Represented as Pie charts
Represents the no.of items sold per category

Revenue
Represented in Line graph
Represents the amount earned per day

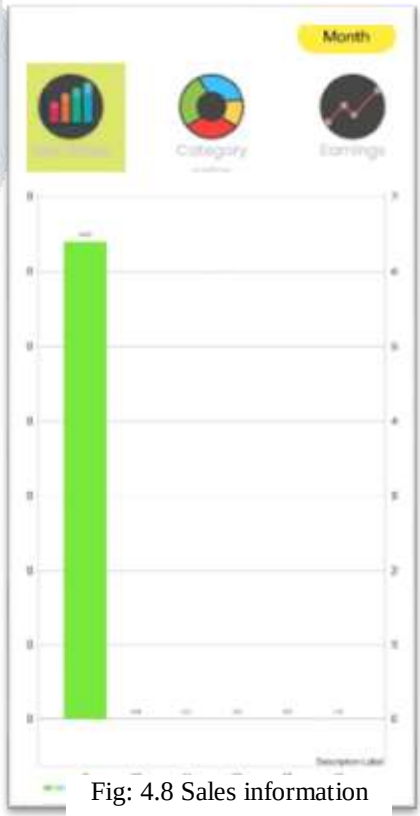

Fig: 4.8 Sales information

5. CONCLUSION

In conclusion, our Ice Cream Parlor Mobile App significantly enhances both customer experience and business operations. It provides a centralized platform with user-friendly interfaces for customers and parlor owners, streamlining ordering, boosting engagement, and fostering loyalty. Key features like user registration, login, product browsing, real-time order tracking, and reward management make the app seamless and enjoyable for customers while helping parlor owners manage their operations efficiently. Looking forward, we plan to add features like personalized flavor recommendations, augmented reality for interactive experiences, and machine learning to optimize inventory and product suggestions, ensuring we stay ahead of market trends and continue to enrich the user experience.

6. REFERENCES

[1] https://ijarsct.co.in/Paper5370.pdf
[2] https://www.researchgate.net/publication/259844267_E-commerce_Smartphone_Application
[3] https://ijcrt.org/papers/IJCRT2105043.pdf
[4] https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3351774
[5] https://www.fatbit.com/fab/ecommerce-mobile-app-development/