# Online Chatbot based Ticketing System

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*Abstract* :The usage of smartphones has seen a rapid increase, with mobile applications becoming more sophisticated and capable of enhancing user experience. This paper focuses on a chatbot-based ticketing system designed for booking museum tickets using React Native and Expo. The system integrates third-party libraries and AsyncStorage to efficiently manage user data, booking details, and preferences. The chatbot interface allows users to interact naturally, enabling them to search for exhibits, view available tickets, and complete bookings seamlessly. The application ensures an easy-to-use experience through intuitive communication, making it possible for users to complete their transactions without hassle. The system also features an automated ticket booking process, allowing for efficient management of booking requests in real-time. By incorporating these technologies, the application aims to revolutionize how museum tickets are booked, offering both convenience and innovation.

*IndexTerms* -Smartphone, React Native, Expo, Chatbot, AsyncStorage, Third-party Libraries, Ticket Booking, Museums, User Interface.

## I. INTRODUCTION

In today's fast-paced world, digital technology plays a crucial role in improving user experience across various sectors. One such advancement is the use of chatbot-based applications for simplifying tasks, such as booking tickets. Museums, being key cultural hubs, often require an efficient and user-friendly ticketing system for their visitors. The challenges associated with traditional ticketing systems, such as long queues and time-consuming processes, have paved the way for the integration of chatbots. This paper presents a chatbot-based ticketing system for museum bookings, developed using React Native and Expo. The system allows users to interact through a conversational interface, where they can easily search for exhibits, view available tickets, and complete their bookings in a few simple steps. With the integration of AsyncStorage and third-party libraries, the system ensures seamless data management and personalized user experiences. The goal of this system is to provide a convenient and innovative solution to museum-goers, making the ticketing process more efficient and accessible.

### 1.1 Problem Statement

In today's digital age, accessing services such as museum bookings is often time-consuming and inefficient, particularly when users are faced with complex ticketing systems. Traditional booking methods often involve lengthy forms, long waiting times, and complicated processes, which can be frustrating for users. With the growing demand for user-centric, fast, and seamless experiences, there is a need for innovative solutions that simplify the process. This paper addresses the problem of inefficient ticket booking for museum visits and presents a solution through the development of a chatbot-based ticketing system. The goal of this system is to enhance the user experience by providing a quick, intuitive, and interactive platform for booking museum tickets, making it accessible and easy for users to plan their visits.

### 1.2 Objectives of the study

- **Design an Application** that allows users to easily book museum tickets through an intuitive chatbot interface.
- **Integrate Third-Party Libraries** and **AsyncStorage** to handle booking data and improve user experience by providing personalized recommendations and seamless management of ticket information.
- **Create an Efficient and User-Friendly Chatbot** that guides users through the entire ticket booking process, from searching for exhibits to finalizing their bookings in a few simple steps.

### 1.3 Scope and Limitation

Chatbot-based ticketing systems have become an innovative solution in improving the way users book tickets for museums and other cultural institutions. The scope of such applications includes:

- **Interactive User Interface**
  Providing a chatbot interface that allows users to easily search for exhibits, view available tickets, and complete bookings through simple, conversational interactions.
- **Seamless Ticket Booking**
  Enabling users to complete their ticket bookings efficiently by integrating real-time availability updates, ensuring that users can make reservations without the need for complex forms or waiting.
- **Personalized Recommendations**
  Using the system's backend to analyze user preferences and provide personalized recommendations, helping users discover new exhibits or events that match their interests.

## II.     Literature Reviewing

As part of the literature survey, we explored existing ticketing systems and chatbot applications to understand how they function and identify areas for improvement. The goal was to analyze these applications, determine their strengths and weaknesses, and highlight how our chatbot-based ticketing system can stand out in the market. Below are some notable apps that offer similar services in the ticketing industry:

### 2.1 MUSEUM TICKETMASTER

Ticketmaster's mobile app allows users to browse and purchase tickets for various events, including museum visits. It integrates real-time ticket availability and payment features to streamline the user experience. The app's strength lies in its extensive global coverage of events and secure payment gateways. However, it relies on traditional browsing and manual form-filling, which could be enhanced by implementing a chatbot-driven interface that provides users with personalized recommendations and faster ticket booking.
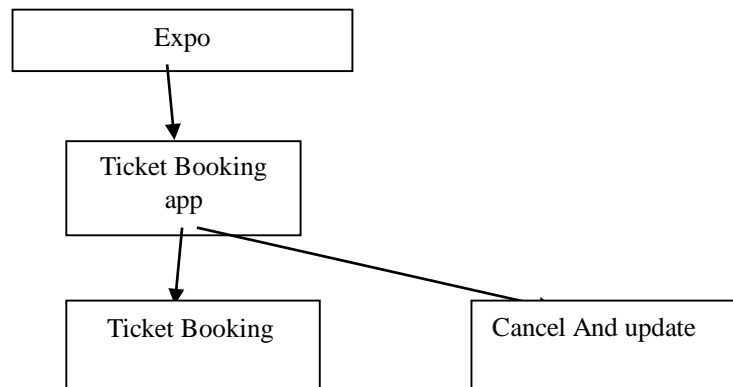
### 2.2 MUSEUM BUDDY

Museum Buddy is a mobile application designed to make museum visits more convenient by allowing users to book tickets for various museums across different cities. Key features include exhibit information, ticket availability, and a digital wallet to store purchased tickets. While it offers an organized and user-friendly experience, there is a lack of real-time interaction with the app. Incorporating a chatbot that guides users through the ticketing process would enhance user engagement and create a more intuitive, hands-free experience.

## III.     System Architecture

### 3.1 Overview of the Proposed Framework

The proposed system includes 2 different modules [1] Real-Time Ticket Availability and Booking [2] Automated User Interaction and Feedback Generation

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│      Expo       │
└─────────────────┘
         │
         ▼
┌─────────────────┐
│  Ticket Booking │
│       app       │
└─────────────────┘
         │        \
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┌─────────────────┐  ┌─────────────────┐
│  Ticket Booking │  │ Cancel And update│
└─────────────────┘  └─────────────────┘
```

This is the 0 level (DFD) Data flow diagram which shows the flow of data of the Application

### 3.2   Hardware and Software components

- **Android Device** for running the application easily
- **Software Stack:** Javascript, React-Native, Expo

### 3.3 Data Collection

The system collects real-time user location data to provide nearby exhibit recommendations. This data is stored locally and can be shared with emergency contacts or friends in case of an emergency, ensuring user safety during app usage..

## IV.     Implementation

This chatbot-based museum ticketing app is designed to provide a seamless experience for users when booking tickets. The implementation can be divided into three main steps:

1. **User Interaction with the Chatbot**
   Upon launching the application, users are greeted by a friendly chatbot interface designed for intuitive and interactive communication. Users can ask the chatbot about available exhibits, ongoing or upcoming events, and get suggestions based on their interests or age groups. The chatbot responds in real-time, handling user queries, offering descriptions of exhibits, and even helping users decide what to explore based on themes like history, science, or art. The user experience is kept conversational to reduce friction and provide a more personalized touch.

2. **Ticket Booking (Cash Payment at Museum)**
   Once the user selects their desired tickets, the app confirms availability and completes the booking process. Since payments are made in cash at the museum, the app provides a booking confirmation and displays the relevant details (e.g., time, location) for the user to pay upon arrival at the museum.

3. **Confirmation and Notifications**
   Once a booking is completed, the system automatically generates a confirmation screen summarizing all relevant ticket information. Users are provided with a **QR code or booking ID** which can be shown at the museum for faster entry. Additionally, the app schedules push notifications or reminders leading up to the event day, ensuring users don't miss their visit. These reminders may include directions, museum guidelines, or any important updates related to the exhibit or event.
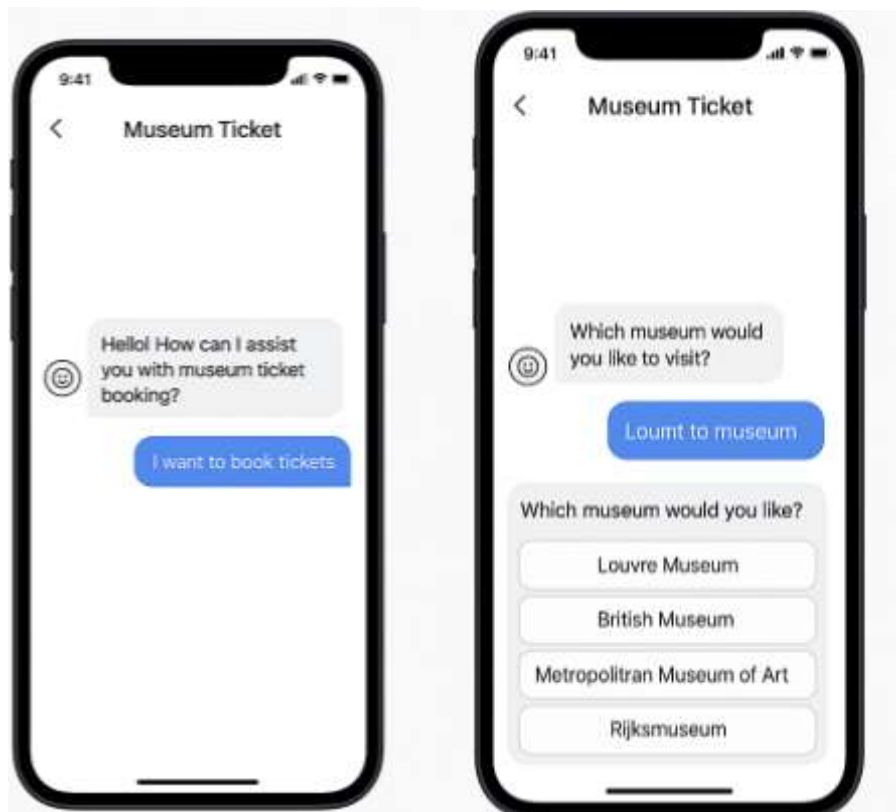
## V.     RESULTS AND ANALYSIS

### 5.1 Performance Metrices

- The booking is increased after implementation of the app
- Any android can run this app Optimally.

### 5.2 Scenarios simulation

The testing results are shown through two screenshots taken from the user's device. The first screenshot displays the chatbot interface during the ticket booking conversation. The second screenshot shows the final booking confirmation with ticket details and payment instructions (cash at the museum). These validate the working of the app from interaction to successful ticket reservation.

### 5.3 Analysis of key findings

Although many users are aware of digital solutions for museum ticketing, fewer actually use such apps due to concerns about **ease of use** and **trust in chatbot accuracy**.

Users in rural or less tech-savvy areas were less likely to engage with the app due to **limited internet access** or **lack of familiarity with chatbot interfaces**. Despite these challenges, feedback showed that users found the app helpful for **quick bookings** and **easy access to exhibit details** once they understood the flow.

## VI. CONCLUSION AND FUTURE ENHANCEMENT

### 6.1 Summary of Contributions

This chatbot-based museum ticketing application provides a simple and effective way for users to book tickets using a conversational interface. The app reduces the need for manual booking processes and improves user convenience, especially for those unfamiliar with complex navigation.

Key features such as chatbot-guided interaction, exhibit information, booking confirmation, and offline cash payment make the system user-friendly and accessible.

By simplifying ticket booking and making exhibit details easily available, the app enhances visitor experience and encourages more people to engage with cultural spaces like museums.

### 6.2 Future Enhancement and Research Direction

● In future updates, a **voice command feature** can be integrated to allow users to interact with the chatbot hands-free, making the booking process even more seamless and accessible.

● Additionally, features like **QR code-based check-ins**, **multi-language support**, and **real-time exhibit navigation** using indoor maps can be introduced to further enhance the user experience and accessibility within the museum environment.

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