Project Report: AI-Powered Bus Booking Assistant

Introduction

With the rise of digital solutions, there is a growing need for smarter and faster customer service. This project presents an AI-based assistant built to support bus ticket booking platforms. Using natural language processing (NLP), this assistant helps users with questions about schedules, bookings, cancellations, and payments. The main goal is to make the booking process smoother and improve user experience through intelligent automation.

Abstract

The Bus Booking Assistant is an AI chatbot that uses TensorFlow.js for understanding user input. It answers questions by matching them to a preloaded set of FAQs. The assistant learns how to handle different types of queries using machine learning, and it is designed to work in web browsers. This report explains the tools used, the steps taken to build the assistant, and its benefits for users and businesses.

Tools Used

- TensorFlow.js - A JavaScript library for building and running ML models directly in the browser.
- HTML/CSS - For designing the chatbot's visual layout.
- JavaScript - For controlling the chatbot's behavior and logic.
- GitHub - Used for code sharing and version control.

Development Steps

1. Requirement Analysis

   Determined the key features needed for a useful bus booking chatbot.

2. Dataset Collection

   Created a list of common questions related to bus bookings like ticketing, timing, cancellations, and payment.

3. Model Training

Trained a machine learning model with the following steps:

- Cleaned and prepared the text data.
- Defined and compiled the model structure.
- Trained the model to understand user intents.

4. User Interface Design

Built a clean, simple front-end using HTML and CSS so users could easily chat with the assistant.

5. System Integration

Linked the chatbot interface to the trained ML model to provide real-time answers.

6. Testing & Validation

Tested the assistant to make sure it worked properly and gave correct responses.

7. Deployment

Hosted the chatbot online so users could access it anytime via a web browser.

This project shows how AI and NLP can improve customer service in the transport industry. The chatbot reduces pressure on support teams and offers quick help to users. In the future, the system could be improved by adding more FAQs, enabling voice input, and using more advanced ML models to boost accuracy.