SMART INDIA HACKATHON 2024
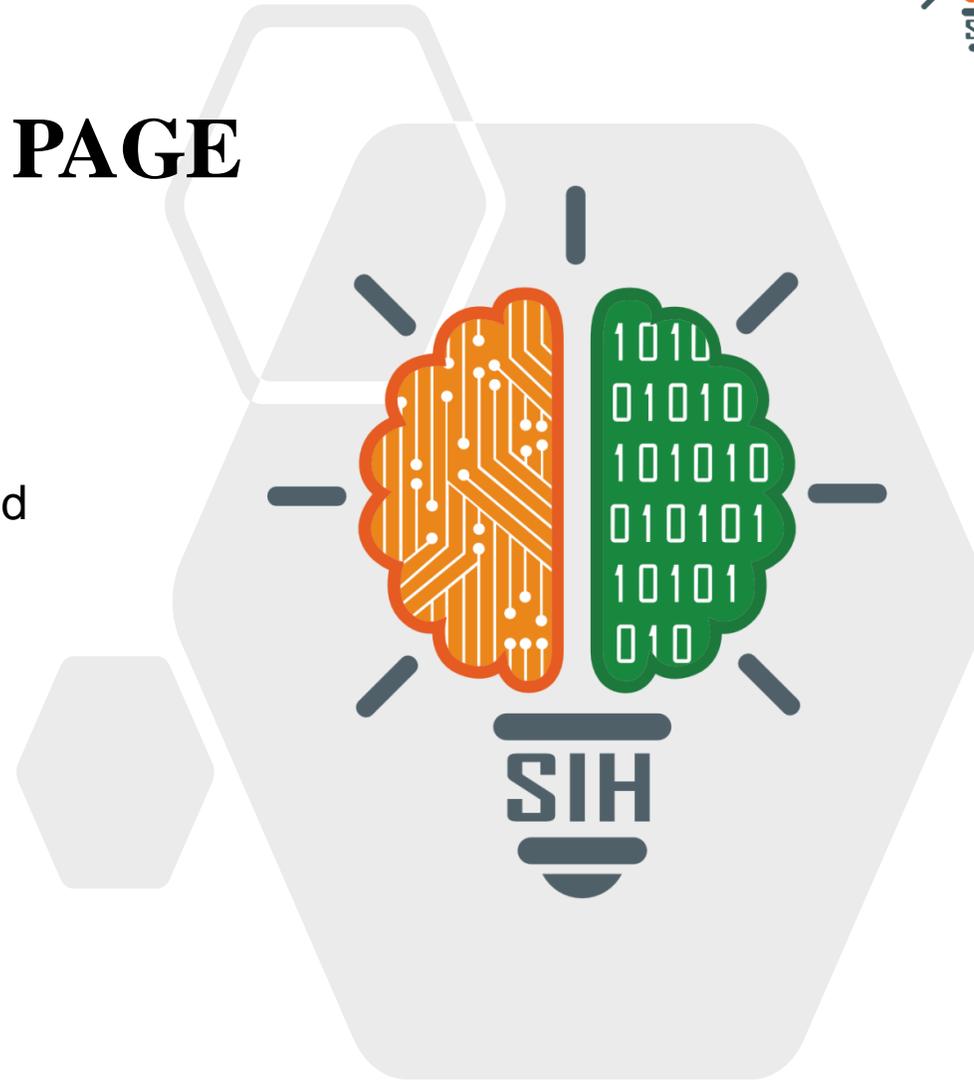
TITLE PAGE

- **Problem Statement ID-** SIH1648

- **Problem Statement Title-** Online Chatbot based Ticketing System

- **Theme-** Travel & Tourism

- **PS Category-** Software

- **Team ID-**

- **Team Name-** Code-A-Cola_TMSL

IDEA TITLE

Idea / Solution :

A multilingual AI chatbot that streamlines ticket bookings with:

- ❖ **Simple Access**: No authentication required for bookings.

- ❖ **Multilingual Support**: Enables communication in multiple languages.

- ❖ **Secure Payments**: Transactions via platforms like Stripe/PayPal.

- ❖ **Ecofriendly Ticketing**: Paperless, fast entry through QR codes.

- ❖ **Real-Time Data**: ML models provide data for economic decisions.
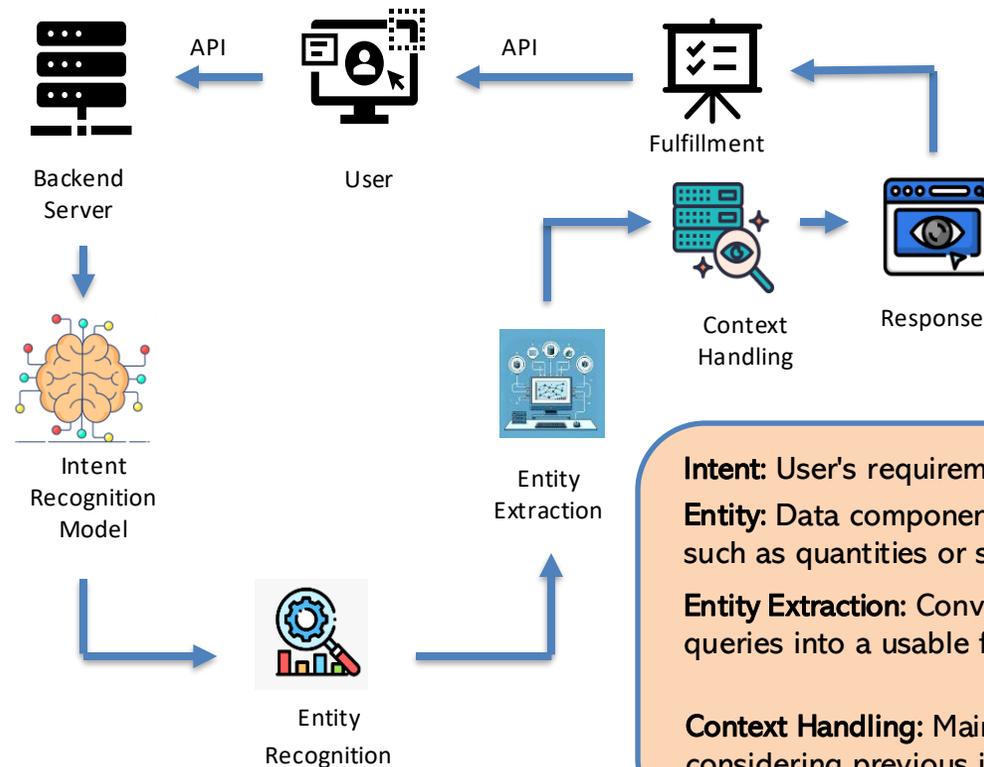
Problem Resolution :

- ✓ Automated booking prevents errors like wrong tickets, double bookings.
- ✓ Eliminating queues and providing robust responses enhance user experience.
- ✓ Predictive analysis supports better decision-making.

Unique Value Propositions (UVP) :

- ❑ Hosting in separate containers, ensures scalability, portability and security.

- ❑ Decentralized access via a web app and Telegram integrations, provides flexible service options for users.

- ❑ The chatbot trains itself with regular conversations.

- ❑ Integration of Augmented Reality for interactive exhibits and virtual tickets, while using gamification with quizzes and loyalty programs for user engagement.

TECHNICAL APPROACH

- ❖ **Frontend**: Built with **React.js**, **Tailwind CSS**, and **JavaScript** for a responsive, user-friendly interface.

- ❖ **Backend**: Managed using **Python** and **FastAPI** (planned transition to **Django**), with **MongoDB Atlas** for cloud-based database access.

- ❖ **Chatbot**: Implemented via **Google Dialogflow** to facilitate chatbot communication.

- ❖ **Network-based Natural Language Understanding (NLU)** system that trains itself regularly with conversations

- ❖ **Integrate Blockchain** for secure, tamper-proof ticket transactions and verification, while offering NFT-based digital memorabilia as proof of visit for a unique and verifiable visitor experience.

- ❖ **Multilingual Support**: Implemented via **Google Translate API** to achieve the wide sector of languages the chatbot might tackle.

PROCESS FLOW ARCHITECTURE

API — Backend Server — API — User — Fulfillment

Backend Server → Intent Recognition Model → Entity Recognition → Entity Extraction → Context Handling → Response

Intent: User's requirements or goals.

Entity: Data components from user queries, such as quantities or specific requests.

Entity Extraction: Converts raw data from user queries into a usable format, e.g., 'twelve' to '12'.

Context Handling: Maintains continuity by considering previous interactions for better understanding and response accuracy.

Product Status: The product is built, deployed and ready for validation testing.

FEASIBILITY AND VIABILITY

Technical Feasibility:

- **Personalization:** Our idea meets the rising demand for personalized experiences.
- **Adaptability:** AI chatbots can be quickly updated and scaled.
- **Multilingual Support:** This feature fulfills diverse user needs.

Market Feasibility:

- **E-commerce Growth:** Highlights acceptance of online transactions and digital service.
- **AI Integration:** Widespread use of AI chatbots in industries shows market readiness.

Financial Feasibility:

- **Operational Savings:** AI chatbots cut costs by managing routine tasks and reducing team size.

Challenges and Solutions:

- **Integration Complexity:** **Modular APIs** and thorough testing can ensure seamless integration and security.

- **Data Privacy:** **Encryption, secure authentication, and GDPR** compliance can protect user privacy.

- **Handling High Volumes and Cost Management:**

  Scalable cloud infrastructure with load balancing and phased implementation can resolve the issue.

- **Continuous Updates:** **NLU** can handle chatbot updates and retraining with user conversations.

- **User Adoption:** **Providing user education** and alternative options can ease adoption in less tech-savvy regions.

IMPACT AND BENEFITS

Potential Impact on Target Audience

Positive:

➢ **Enhanced Experience and Convenience:** Booking with prompts, without buttons, speeds up the process and provides 24/7 access for flexible booking.

➢ **Increased Trust and Confidence:** Clearly handling payments and resolving issues in any language boosts user confidence and trust.

➢ **Data-Driven Insights:** Museums gain valuable insights from visitor interactions, guiding future exhibit planning and marketing strategies.

➢ **Cost Efficiency:** Charging a minimal fee of 1-2% of the ticket price, benefits both museums and users by reducing acquisition costs.

Negative:

➢ **Increased Technology Dependence:** Reduced human interaction due to AI chatbots can lead to over-reliance on technology.

➢ **Potential Job Losses:** Reduced need for customer support teams may lead to unemployment.

Social Benefits:

1. **Inclusivity:** Breaks language barriers, making ticketing accessible to diverse users.

2. **Empowerment:** Users independently solve queries in their preferred language.

Economic Benefits:

1. **Cost Savings:** Reduces the need for human multilingual support teams.

2. **Revenue Growth:** Expands global reach, boosting customer base & efficiency.

Environmental Benefits:

1. **Lower Emissions:** Reduces the need for physical support centers & staff commuting.

2. **Paperless:** Promotes digital transactions, cutting down on paper waste.

RESEARCH AND REFERENCES

LIVE LINKS

- **Web App**: https://ticket-bot-one.vercel.app
- **Stand Alone Chatbot**: https://ticket-bot-dusky.vercel.app
- **Telegram Bot**: http://t.me/QuickTix_bot

REFERENCE LINKS

■ **MongoDB Official Docs :** https://www.mongodb.com/docs/

■ **FastAPI Docs :** https://fastapi.tiangolo.com/#installation

■ **Dialogflow Documentation :** https://cloud.google.com/dialogflow/docs

■ **Platform as a Service :** https://www.sciencedirect.com/science/article/abs/pii/S0090261619300932

■ **Market Analysis :** https://chatbotkit.com/solutions/museum-ai