VIRTUAL CAMPUS ASSISTANT

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Introduction

- The project aims to create a helpful virtual assistant for our college, making it easier for students, staff, and visitors to get information and assistance at the campus reception.
- Improving communication, accessibility, and providing a technological edge for our College.

Background

- The idea behind JyoBo (Virtual Assistant) is to create a technology-driven solution that enhances the overall campus experience.
- Adapting to the expectations of a modern educational institution by incorporating smart technologies.
- Drawing inspiration from the success of virtual assistants in various industries, we aim to bring similar efficiencies to our college environment.

Literature Survey

Category	Focus	Key findings
AI Virtual Assistant [1],[2]	Development of AI-based virtual assistants [3],[4]	Versatility in managing various tasks.[5],[6]
Dialogflow [7],[8],[9]	Use of Google Dialogflow and machine learning for speech recognition.[10],[11]	Potential technology stack for voice recognition model.[12],[13]
Deep Neural Networks [14]	Application of deep neural networks in acoustic modeling [15]	Insights into improving voice recognition model accuracy.[16]

Table 1: Literature Review

Gaps Identified

- There is No Campus Specific assistants
- Data (knowledge base) cannot be updated fastly
- There is no integration of navigation assistance and information retrieval.

Problem Statement

- Developing a user-friendly virtual campus assistant that efficiently integrates information extraction and navigation assistance and enhances accessibility for visitors, students and staff.

Objective

- Use an LLM that understands and responds to user queries.
- Integrate navigation assistance and information extraction to assist users.
- Create a user interface that allows seamless interaction with the virtual assistant.

Methodology

Technology Stack

- Programming Language: Python
- Web app: HTML
- Large Language Model (LLM): GPT by OpenAI
- Vector Database: Pinecone

Model Architecture

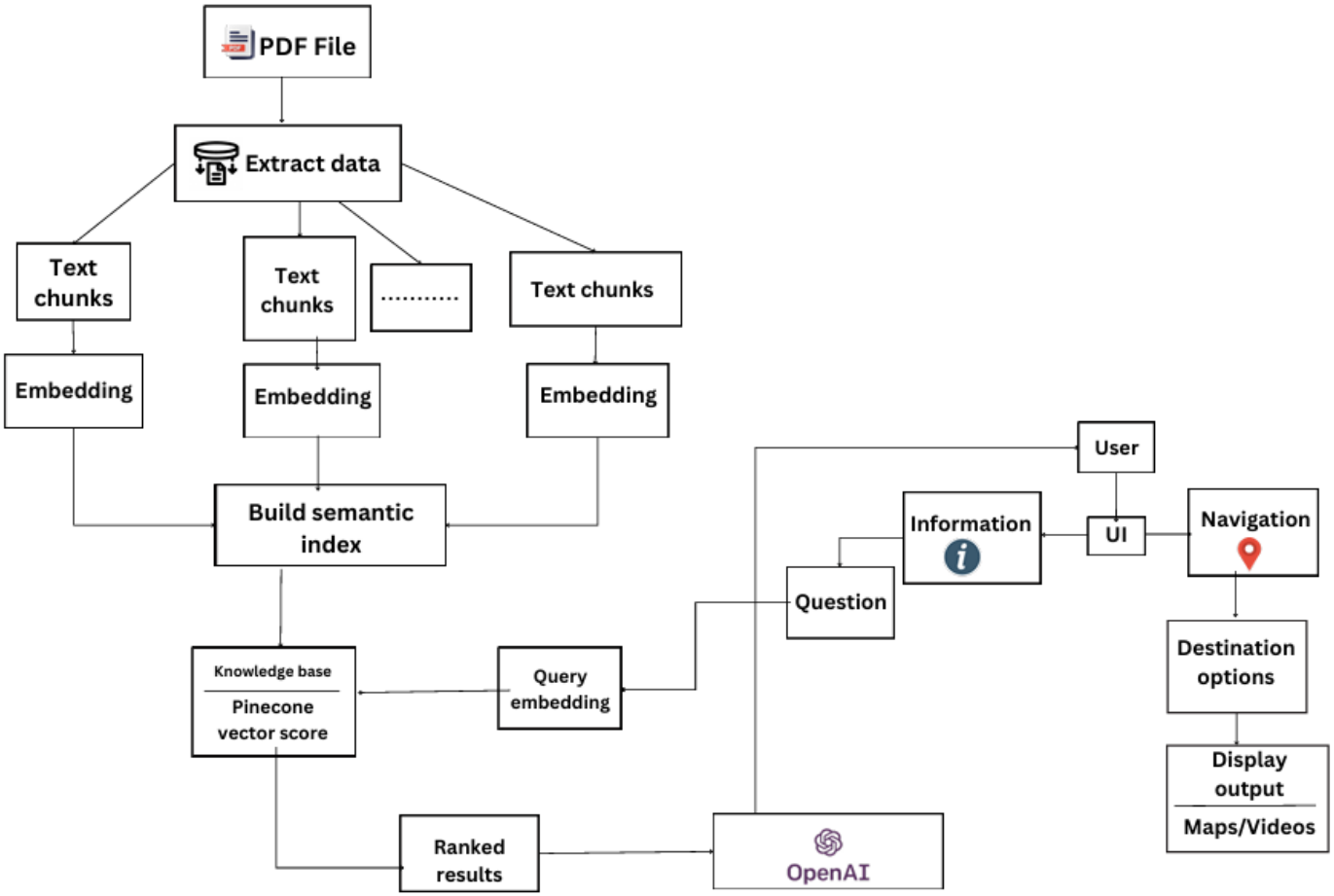
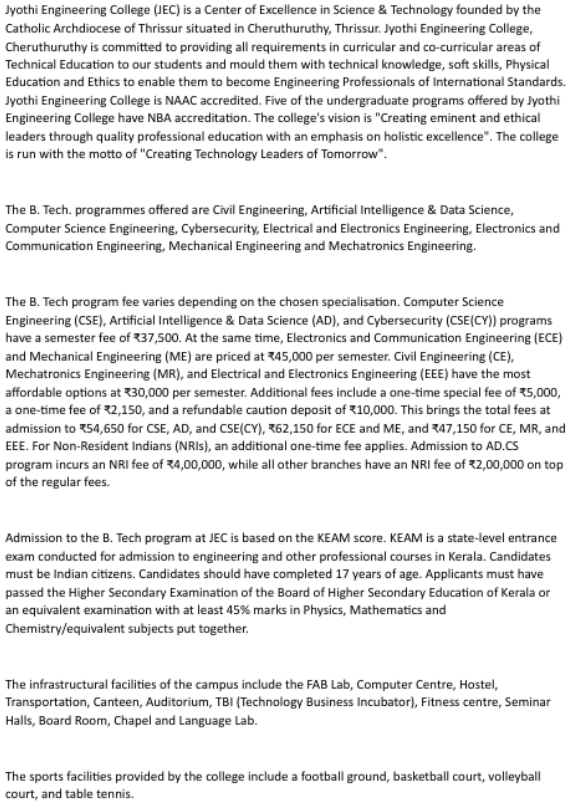


Figure 1: System Architecture

Dataset



Jyothi Engineering College (JEC) is a Center of Excellence in Science & Technology founded by the Catholic Archdiocese of Thrissur situated in Cheruthuruthy, Thrissur. Jyothi Engineering College, Cheruthuruthy is committed to providing all requirements in curricular and co-curricular areas of Technical Education to our students and mould them with technical knowledge, soft skills, Physical Education and Ethics to enable them to become Engineering Professionals of International Standards. Jyothi Engineering College is NAAC accredited. Five of the undergraduate programs offered by Jyothi Engineering College have NBA accreditation. The college's vision is "Creating eminent and ethical leaders through quality professional education with an emphasis on holistic excellence". The college is run with the motto of "Creating Technology Leaders of Tomorrow".

The B. Tech. programmes offered are Civil Engineering, Artificial Intelligence & Data Science, Computer Science Engineering, Cybersecurity, Electrical and Electronics Engineering, Electronics and Communication Engineering, Mechanical Engineering and Mechatronics Engineering.

The B. Tech program fee varies depending on the chosen specialisation. Computer Science Engineering (CSE), Artificial Intelligence & Data Science (AD), and Cybersecurity (CSE(CY)) programs have a semester fee of ₹37,500. At the same time, Electronics and Communication Engineering (ECE) and Mechanical Engineering (ME) are priced at ₹45,000 per semester. Civil Engineering (CE), Mechatronics Engineering (MR), and Electrical and Electronics Engineering (EEE) have the most affordable options at ₹30,000 per semester. Additional fees include a one-time special fee of ₹5,000, a one-time fee of ₹2,150, and a refundable caution deposit of ₹10,000. This brings the total fees at admission to ₹54,650 for CSE, AD, and CSE(CY), ₹62,150 for ECE and ME, and ₹47,150 for CE, MR, and EEE. For Non-Resident Indians (NRIs), an additional one-time fee applies. Admission to AD.CS program incurs an NRI fee of ₹4,00,000, while all other branches have an NRI fee of ₹2,00,000 on top of the regular fees.

Admission to the B. Tech program at JEC is based on the KEAM score. KEAM is a state-level entrance exam conducted for admission to engineering and other professional courses in Kerala. Candidates must be Indian citizens. Candidates should have completed 17 years of age. Applicants must have passed the Higher Secondary Examination of the Board of Higher Secondary Education of Kerala or an equivalent examination with at least 45% marks in Physics, Mathematics and Chemistry/equivalent subjects put together.

The infrastructural facilities of the campus include the FAB Lab, Computer Centre, Hostel, Transportation, Canteen, Auditorium, TBI (Technology Business Incubator), Fitness centre, Seminar Halls, Board Room, Chapel and Language Lab.

The sports facilities provided by the college include a football ground, basketball court, volleyball court, and table tennis.

Figure 2: Dataset

Results

Figure 3: Home Page

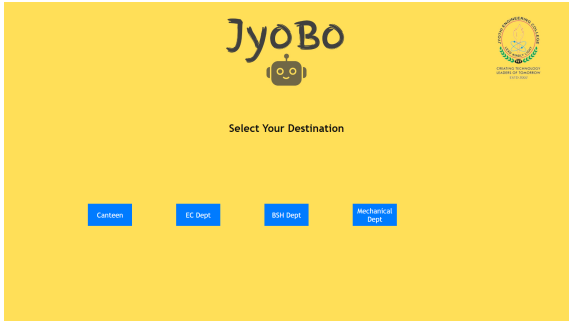


Figure 4: Navigation Page

Results

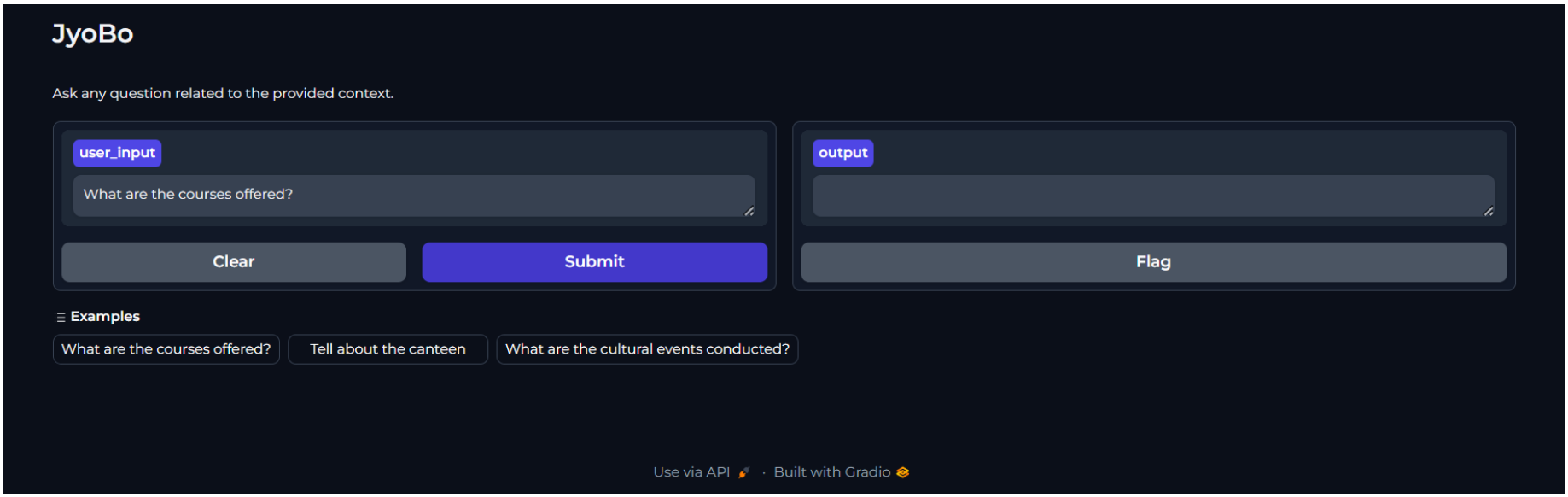


Figure 5: Information Extraction

Conclusion

- The project aims to create a user-friendly virtual campus assistant for students, staff, and visitors improve accessibility and communication on our campus, and provide a smart campus environment.
- Looking ahead, our focus will be on expanding the capabilities of JyoBo, integrating advanced features, and refining the user interface.

Future Scope

- **Voice-Enabled Interaction:** Implementing advanced natural language processing (NLP) and voice recognition technology to enable users to interact with the virtual campus assistant using voice commands.
- **Expansion of College Data:** Continuously updating and expanding the database of college information within the virtual assistant, including details about courses, faculty, events, facilities, and more.
- **Integration of Interactive Maps:** Enhancing the virtual assistant with more interactive maps of the college campus, allowing users to navigate through various buildings, facilities, and points of interest with ease.

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THANK YOU