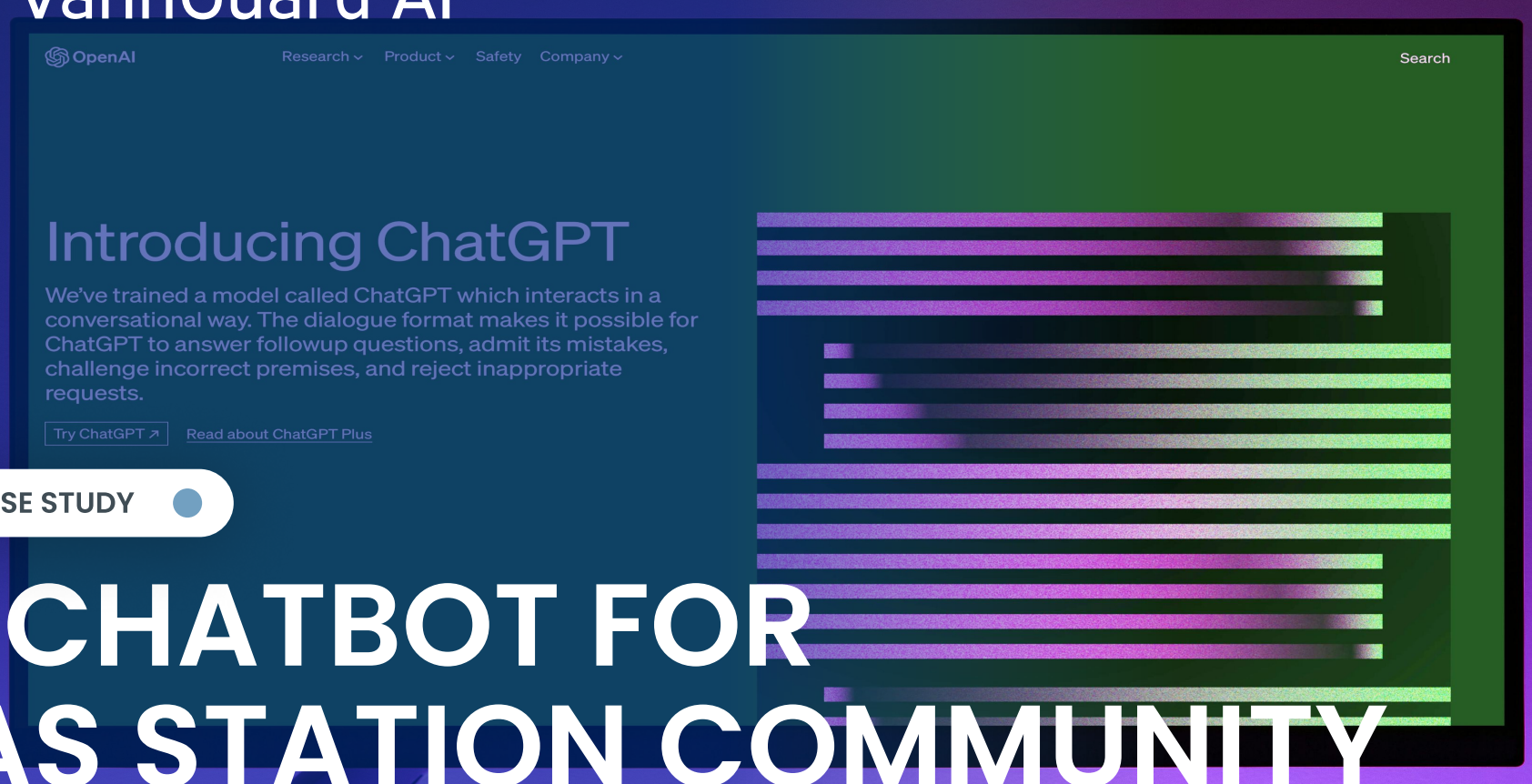
VannGuard AI



CASE STUDY

AI CHATBOT FOR GAS STATION COMMUNITY

Overview

Gasame is an online community of gas stations across the United States, connecting vendors, service providers, industry experts, and online stores. The primary objective of Gasame is to assist gas station owners in enhancing their efficiency, simplifying processes, and maximizing profits. As part of our collaboration with Gasame, we developed an AI Chatbot leveraging OpenAI's Large Language Models (LLMs) to address user queries related to standard documents for gas station equipment operation and troubleshooting.

Customer

Gasame, USA

Country: USA

Customer Size: 1000+

Industry: B2B & B2C

Publish Date: 05/06/2024

Problem Statement

A significant portion of the gas station workforce in the United States comprises individuals from non-English speaking countries with limited education. This linguistic and educational barrier poses challenges in understanding and following standard procedures and troubleshooting guides. Gasame sought an AI-driven solution to support these workers in their daily tasks, ensuring they can access accurate and comprehensible information quickly.

Technical Solution

To address the problem, we developed a sophisticated Retrieval-Augmented Generation (RAG) pipeline that enhances the capabilities of LLMs by providing them with relevant context to respond to user queries accurately and concisely. The backend of the chatbot was implemented in Python and deployed as a service on AWS, ensuring robust and scalable performance. We integrated the chatbot seamlessly with the Gasame mobile application, allowing users convenient access to AI-driven assistance. The solution utilized a range of advanced technologies, including OpenAI GPT-3.5 and GPT-4 models for natural language understanding and generation, Langchain and LlamaIndex for pipeline orchestration, VectorDB for efficient data retrieval, and Sentence Transformers, NLTK, and Spacy for natural language processing tasks. Additionally, Flask was used for API development, while Amazon EC2 provided the computing infrastructure. Data was managed using PostgreSQL and MongoDB, and the entire development process was coordinated through Github. The chatbot was equipped with a corpus of approximately 100 documents, including user manuals, troubleshooting guides, and registration manuals, enabling it to provide comprehensive support to gas station employees.

Results

The implementation of the AI Chatbot significantly enhanced the ability of gas station owners and employees to troubleshoot infrastructure issues and streamline procedural challenges. By delivering clear and concise responses, the chatbot effectively supported both Business to Business (B2B) and Business to Customer (B2C) interactions. Our solution resulted in an improved user experience by making AI-driven assistance easily accessible, thereby enhancing operational efficiency for gas station owners and employees. Additionally, the chatbot achieved high retrieval and generation scores, ensuring that responses to user queries were both accurate and relevant. Overall, by addressing the linguistic and educational barriers faced by the gas station workforce, our AI Chatbot solution helped Gasame achieve its goal of improving efficiency, simplifying processes, and maximizing profits for gas station owners.

Technologies

- OpenAI GPT-3.5
- OpenAI GPT-4
- PostgreSQL
- MongoDB
- NLTK
- Sentence Transformers
- Spacy
- VectorDB
- Flask
- Github
- Langchain
- LlamaIndex
- AWS EC2

Domains

- Generative AI
- Natural Language Processing (NLP)
- Natural Language Generation (NLG)
- Reterival Augmented Generation (RAG)
- Chatbot