PanPal: A chef's chatbot

A chat assistant for the SmartEating platform

Graduate

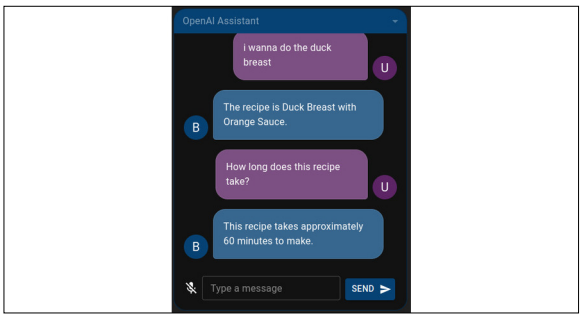
Andri Joos

Introduction: PanPal is a chef's chatbot to enable interactive and intelligent user experience on the SmartEating platform at OST. The primary focus of PanPal is to provide an integrated chatbot that responds to user queries via text or audio and intelligently assist with various recipe-related tasks.

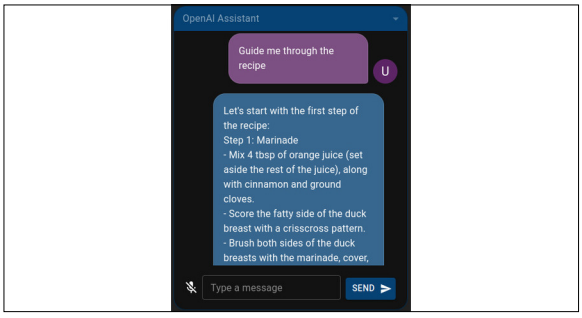
Approach / Technology: The project employs several innovative approaches and technologies to enable PanPal support in the SmartEating platform. First, a chatbot interface (CI) has been developed and embedded into the SmartEating platform. This CI facilitates user interactions, making the cooking guidance accessible and user-friendly. A key feature of this CI is the model selection, which allows users to choose from a variety of interaction models based on their preferences. The project integrates both a GPT-3.5 based OpenAI assistant and Mixtral, a free large language model (LLM) hosted at OST. These models facilitate a comparison between a free LLM and an enterprise LLM.
A significant technical challenge is the integration of the Mixtral LLM using the framework LangChain and the associated prompt engineering and LLM memory management. This is essential for managing context and memory during interactions, ensuring that the chatbot could maintain a coherent and relevant conversation over extended interactions.

Result: The PanPal project is a robust and functional integration of a chatbot into the SmartEating platform. The chatbot provides interactive assistance in cooking related tasks, significantly enhancing the cooking experience. The successful implementation of both the GPT-3-based OpenAI assistant and the Mixtral assistant, which are capable of processing both audio and text input, demonstrates the project's ability to leverage advanced AI technologies to meet user needs. These assistants have been compared to evaluate their performance and effectiveness. The project's outcomes indicate that with further refinements and scaling, the PanPal chatbot has the potential to become an indispensable tool for users seeking interactive cooking assistance.

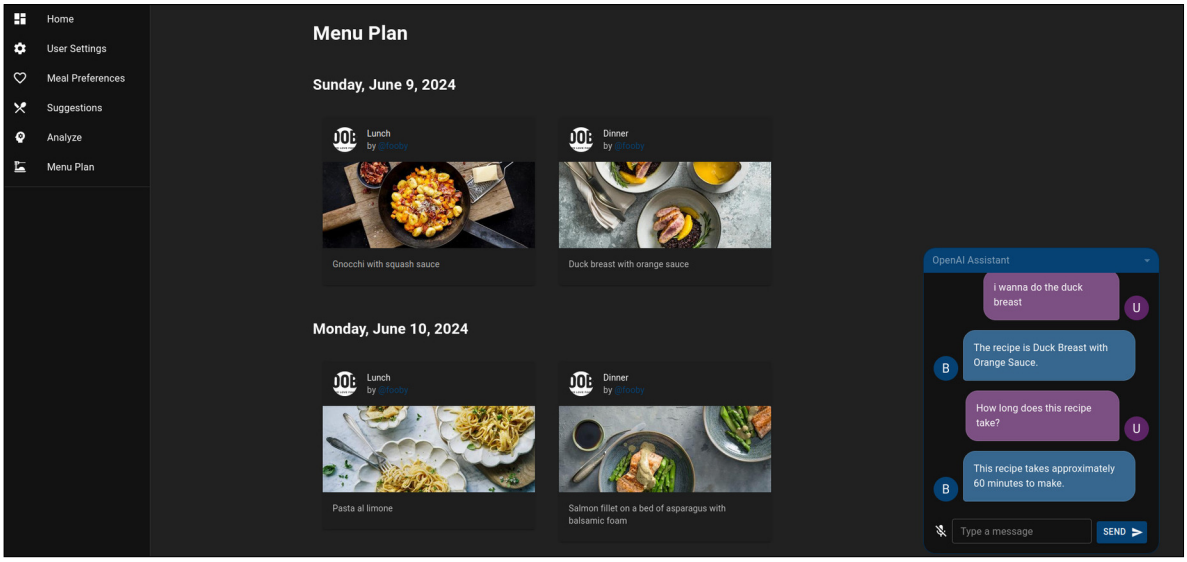
Chatbot interaction
Own presentment



Chatbot recipe guidance
Own presentment



Chatbot in the SmartEating platform
Own presentment



Advisor
Prof. Dr. Mitra Purandare

Co-Examiner
Dr. Raphael Polig, IBM Research GmbH, Rüschlikon, ZH

Subject Area
Artificial Intelligence, Software