

Research in AI-based chatbot implementation in ECTs Low code application.

Master's Internship proposal

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1 Background

Chatbots have become increasingly popular in recent years for providing personalized customer service, automating repetitive tasks, and handling a wide range of user queries. They can be integrated into a variety of applications, such as e-commerce, healthcare, and finance, to improve user experience and increase efficiency. With the recent advancements in natural language processing techniques, chatbots have become more advanced and sophisticated, able to understand and respond to a wide range of user queries. The goal of this internship is to develop a chatbot using advanced bot-building tools, semantic search, and various natural language processing services, in order to provide accurate and personalized responses to user queries.

2 Objectives

The main objective of this internship is to develop a chatbot that can:

- Understand user intent and extract entities from user queries.
- Provide accurate and personalized responses to a wide range of user queries.
- Integrate with advanced bot-building tools, semantic search, and various natural language processing services.
- Be accessible and user-friendly, with the ability to understand and respond to voice commands.

3 Chatbot Components.

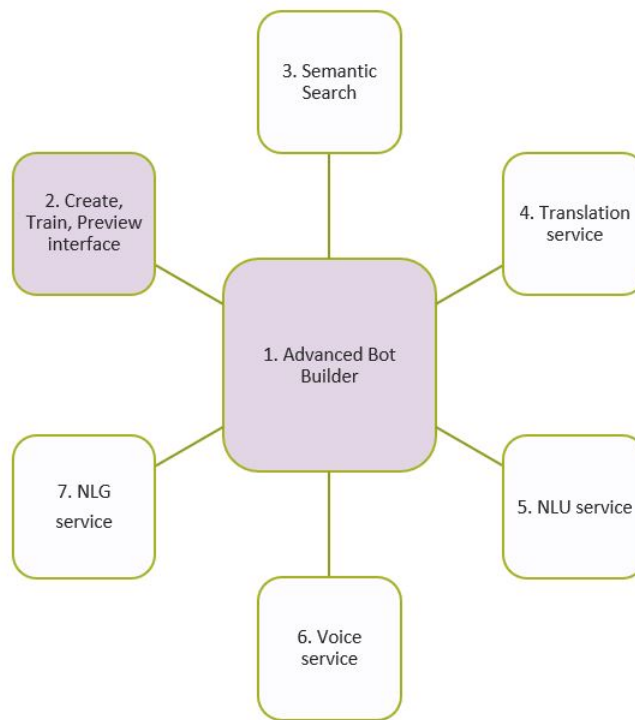


Figure 1: Chatbot Components[1].

4 Methods

4.1 Advanced Bot Builder

The advanced bot builder will be the backbone of the chatbot, taking care of dialog management and providing the base for adding intents, entities, and slot filling. It will also handle the storage and management of the chatbot's knowledge base, allowing for easy updates and modifications. The advanced bot builder will also provide the ability to test and preview the chatbot's performance, making it easier to identify and correct any errors or issues.

4.2 Create, Train, and Preview the Interface

The chatbot will be trained on a set of sample user utterances. One sample example: "Book me a flight to Rio next week", "Fly me to Rio on the 24th", and "I need a plane ticket next Sunday to Rio de Janeiro." The entities "From.location", "To.Location", and "Date of Journey" will be annotated in the training data. The train model view and test model view will be used to evaluate the chatbot's performance and make any necessary adjustments. The training data will be sourced from a variety of sources, such as customer service transcripts, social media posts, and online forums, in order to ensure that the chatbot can handle a wide range of user queries.

4.3 Semantic Search

The chatbot will use semantic search techniques to understand the meaning of user queries and provide relevant responses. It will be able to understand the intent behind a user query, even if it is phrased in a different way. For example, if a user asks "What is the weather like in New York City?", the chatbot will be able to understand that the user is asking about the current weather in New York City and provide an appropriate response.

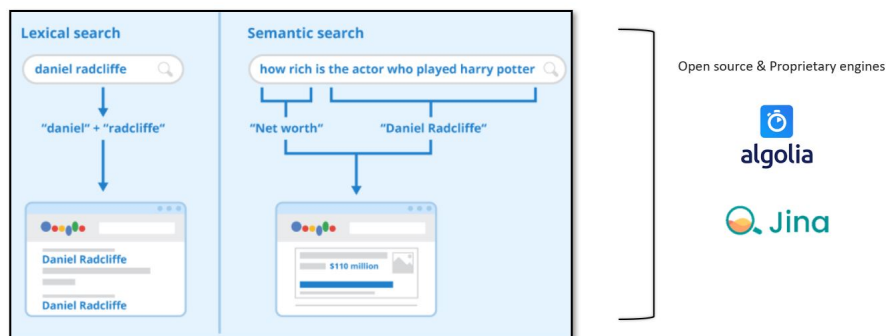


Figure 2: Semantic Search[1].

4.4 Translation Service

The chatbot will be able to understand and respond to user queries in multiple languages using machine translation.

4.5 NLU Service

The chatbot will use natural language understanding to extract entities and intent from user queries, allowing it to provide more accurate and personalized responses.

4.6 Voice Service

The chatbot will be able to understand and respond to voice commands, making it more accessible and user-friendly.

4.7 NLG Service

The chatbot will use natural language generation to provide responses in a human-like manner, making the conversation more natural and engaging.

5 High-Level Architecture.

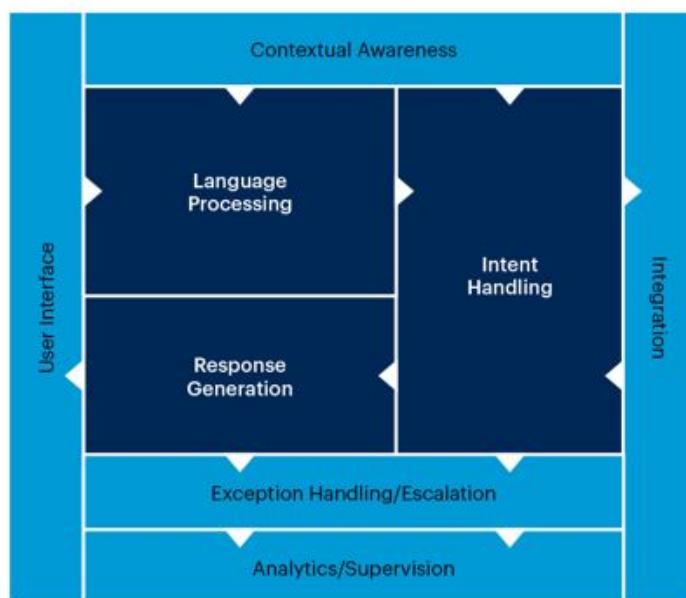


Figure 3: High-level-Architecture[1].