An Intelligent Chatbot for College Enquiry with Amazon Lex

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With this research paper I learned a lot about the on-premises services provided by the AWS (Amazon Web Service)and along with it we have used specific service to build this project fully based on Cloud Computing.

**Abstract -** *People are looking for new ways to use technology to make their lives easier due to the increasing number of mobile and web applications. Chatting is an important part of everyday life with many applications and software. One of the most exciting and promising developments in human-machine interaction is the chatbot. We are going to implement an artificial intelligence based virtual assistant that can answer college-related queries... This includes interviews, stakeholder entry questionnaires, fee structure, scholarship information etc. can answer various questions such as This paper focuses on establishing universities. Ask Chatbot to help stakeholders answer various questions using Amazon Lex. This research aims to build a voice chat tool that can be used for hotel booking using Amazon Lex Service as a communication platform with Facebook Messenger. The conversation is built on Amazon Web Services (AWS) using Lambda Functions to configure the bot with words and responses in the form of a service called Amazon Lex, and to validate responses by performing actions using the Facebook Messenger service. The Lambda function runs a script that collects data in plaintext or voice recognition using a microphone that is sent to Amazon Lex by using various services provided by Amazon Web Services. The chatbot then sends the appropriate response to the user connected to the device or in plain text*

***Key Words*: chatbot, Machine Learning, Amazon Web Services, Amazon Lex, Artificial Intelligence**

1. **INTRODUCTION**

The ability of chatbots to solve problems, save time and money increases the demand for them. Conversation has changed the way we communicate in recent years. Natural language processing, machine learning, robotics and electronic services, also known as chatbots, are considered the most popular applications of artificial intelligence to date [2] .. Therefore, chatbots are the most accessible systems for human users and are always available. Access to the Internet and other mobile devices or laptop devices can be used by anyone, anywhere, at any time, to answer questions without problems. College Chatbot Uses Machine Learning Concepts to Talk With People Usually, chatbots provide a text-based user interface that allows users to enter commands and receive text responses to solve problems.

Many businesses offer proprietary and open-source platforms for developing chatbots. One such solution for connecting voice- and text-based dialog interfaces to any application is Amazon Lex, part of Amazon Web Services. Cheye's chatbot framework uses Amazon Lex, Natural Language Processing and Machine Learning capabilities. Using Amazon Lex, anyone can build anything from a direct messaging bot to an enterprise system.

**2. LITERATURE SURVEY**

Many applications can be implemented with the help of artificial intelligence. A variety of businesses can use chatbots, including marketing, education, banking, healthcare, and finance. Chatbot systems should also incorporate Natural Language Processing (NLP) and Machine Learning (ML) technologies for this.

Using AI / ML, P. Nihila, G. Jyoti, K. Mounika, Mr. C. Kishore KumarReddy and Dr. B.W. Various questions have been answered by Ramana Murthy [5]. (Artificial Intelligence Markup Language). Alicebot is a chatbot application created or developed using AIML, supported by ALICE free code.

NLP (Natural Language Processing) based synthetic conversation was proposed by Nitesh Thakur, Akshay Hivrale, Sourabh Selote, Abhijeet Shinde and Professor Namrata Mahakalkar [6]. NLP can be done in two ways: written text and vocal or audio dialogue. Written communication is simpler than oral communication. In the virtual human interaction system, this research explores some new possibilities to interpret and process information at an ever-increasing speed [6].

Uriurio Windiatmoo, Ridho Rahmadi, and Ahmad Fathan Hidayatullah [8] developed a deep learning chat that can be connected to Facebook Messenger.

## 3.Amazon Web Services

## AWS is a subsidiary of Amazon that provides management, cloud computing and data analytics services, etc. AWS offers built-in infrastructure. Business applications, robotics, content distribution, consumer interaction, end-user computing, storage, machine learning, development tools, databases, gaming technology and media services are among its offerings. Amazon's Lex AWS service allows developers to embed dialog interfaces and text-based dialogs into any application. With Amazon Lex's advanced deep learning capabilities, customers can create applications with stunning user interfaces and authentic conversational interactions. These capabilities include automatic speech recognition and natural language understanding to determine text intent. Anyone with programming skills can immediately set up a conversation with Amazon Lex. It manages the dialog and dynamically changes the response. Amazon Lex can easily connect to multiple AWS technology platforms, including Amazon Cognito, AWS Mobile Hub, Amazon CloudWatch, and Amazon DynamoDB, and includes a pre-built interface with AWS Lambda. Saaforce, HubSpot, etc. Integration with Lambda allows bots to access enterprise connectors without pre-built servers to connect data on SaaS platforms such as

## Amazon Lex benefits include:

## 1. Simplicity: Amazon Lex builds a complete natural language model from the few sample sentences we provide, allowing bots to communicate using speech and text, ask questions, receive answers, and perform complex actions.

## 2. Deep Learning Technologies: The Conversational Language Understanding (SLU) system is built using ASR and NLU technologies from Amazon Lex, which uses technology like Alexa. Through SLU, Amazon Lex accepts natural language speech and text input, determines user intent, and satisfies by calling appropriate business functions.

## 3. Seamless deployment and scale - Amazon Lex allows you to easily deploy voice or text chat for use on mobile devices, web apps, and chat services Integrated integration with the AWS platform: Amazon Lex natively integrates with other AWS services such as Amazon. Cognito is compatible. , AWS Lambda, Amazon CloudWatch, and AWS Mobile Hub.

## There are no minimum payments or upfront fees with Amazon Lex. Only outgoing texts or requests are charged. The service is a low-cost solution for creating interactive interfaces due to its premium price and minimal cost per request.

## 4.Proposed System

## Basic user data is collected by bots, which then process and display search results to users.

## Intents: An intended user action is defined by an intention. When the end user interacts with the bot, the user's intent matches the bot's best intent. Each user action is represented by an intent. User preferences match the bot's best intentions when interacting with users. There is a set of sample words for each purpose. User requests are matched with word samples. A bot can be built to handle multiple intents. Combining intentions allows you to resolve difficult conversations.

## For example: This collection may end. This is basically a sentence with the same meaning as our stated intention. A number of expressions are offered when forming an intention. User preferences are classified using a model created using this expression. This model determines the user's intent when using one of these phrases. The best match is activated when multiple intents are matched.

## Fulfillment: When a wish is activated, the bot responds by sending fulfillment. There are two implementation definitions: Create a Lambda function that will be called when the intent occurs. Amazon recommends creating a Lambda function to execute the function. The Lambda function will execute the action and after receiving all the information from Lex (intent and location details) will choose what to respond to the user. b) Lex returns data (details of purpose and location) for necessary implementation.

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## Note: The parameters included in the intent configuration are called locations. The host value is dynamically derived from the user's runtime requirements. Operators store structured data that can be used to quickly execute logic or return results. Each hole has a shape that determines what value it will hold. Lex has several internal intents and places to extract important information. For example the name of the city, the date and some of my departments

## 5.Result

The goal of the system is to address the various needs of the stakeholders.

## 6.CONCLUSION

## The proposed system reduces the paperwork, labor and time required by each individual.. In this paper, we have created a chat that can interact with various users by reducing the time of visiting the college to inquire about admission details / information. , college work, etc. Common answers are created for questions unrelated to the intentions expressed in the interview, and such questions must be checked and entered into the database.

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