

# An Analysis of Artificial Intelligence and Implementing Chatbot based on Multilingual Language

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**Abstract:** A Chatbot is computer program where it is designed to simulate an intelligent conversation. It takes the input of user in many formats such as text, voice, etc. To achieve this, there are many open source platforms available. Artificial Intelligence Markup Language (AIML) is derived from Extensible Markup Language (XML) which is used to built up a conversational agent (chatbot) artificially. In this “API.AI (Dialog flow)” is used. API.AI seems to have found out the flaw of letting the user define entities and intents by entering multiple utterances and hence provides a huge set of domains. Some of the SDKs and libraries that API.AI provides for bot development are Android, iOS, webkit, HTML5, JavaScript, Node.js, Python, etc. API.AI is built on few concepts such as agents, entities, intents, actions, contexts and fulfilments. This method is used for developing an android application chatbot which will interact with user using text and voice responses.

## INTRODUCTION

A Chatbot is a program that communicates with the user. It is a layer on top of a service. Sometimes it is done by machine learning, the more you interact with it, the more it becomes smarter Or, Commonly, the intelligent rules are used to drive. A Chatbot can deliver diverse services such as important life – saving health messages, to check the weather forecast, to purchase a new pair of rings and anything else. The term Chatbot is achieved with the text conversation but is rapidly growing through the voice communication. There are different channels through which you can talk to the Chatbot such as WeChat, Telegram, Facebook Messengers, Siri, SMS, Slack, Skype and many others. Consumers spent lots of time using messaging application (more than they spent on social media). Therefore, messaging application are currently the most popular way companies deliver chatbot experiences to consumers.

## CHATBOT FRAMEWORK



When you are ready to build your chatbot, you'll need the right framework. Chatbot frameworks are digital spaces where coders and developers built bots from the group up. This project covers the most common bot building frameworks: Dialogflow.

Dialogflow is Google's contribution to the best framework pantheon. Though newer and less robust the Lex or the Microsoft Bot Framework, it offers its own unique advantages. Until recently, Dialogflow was known as API.AI, and many of the resources regarding the framework still refers to it by its old name. Google changed the name in October of 2017 to reflect the fact that the service wasn't just an API anymore, but a robust conversational interface tool that could with other frameworks.

Dialogflow offers prebuilt agents, multi-language support, and in-line code editing and it has also created design and intuitive interfaces which Google's mainly specifies. Bots built on Dialogflow integrate easily with Google Home and can be hosted with Google Cloud Platform. Dialogflow's most distinct advantage is Chatbase, its analytics program.

Google is already a kingpin of web and user analytics, thanks to its long-established Google Analytics platform, and their early effort in the space of chatbot analytics will set them apart for the data crunches in the extensive move. Chatbase provides similar functionality and visibility to Google Analytics, but for chatbots, providing information about how, when, and who are using chatbots. Chatbase works with bots built on other frameworks, but for anyone who values complete accuracy and visibility into their data, the native chatbase integration is a major win.

## HISTORY OF CHATBOTS

1966 **ELIZA** - Linux human conversation by matching user prompt to scripted responses, it was able at least for a time to pass the Turing Artificial Intelligence test.

1972 **PARRY** was more serious and advance than ELIZA, it was described as ELIZA with attitude.

1988 **JABBERWACKY** one of the earliest attempts in creating AI through human interaction mainly for entertainment they have ultimate goal of moving text-based system to one wholly voice operated.

1992 **DR. SBAITSO** an AI speech sensed program created for MS DOS base PC's. Designed to showcase digitized voice, the Doc was far from life like despite skimming the role of psychologist when interacting with users.

1995 **A.L.I.C.E.** (Artificial Linguistic Internet Computer Entity) was natural language processing bot, she could apply heuristic pattern matching rules to human inputs in other words – other conversations.

2001 **SMARTERCHILD** an intelligent bot widely distributed across SMS networks with features such as quick data access and fun personalized conversation. It was considered precast to apple's SIRI and Samsung voice.

2006 **IBM'S WATSON** was specifically designed to compute in JEDPAADY which she won in 2011 against two of the shows for a champion. Now Watson uses natural language processing, Machine learning to reveal inside a large amount of data.

2010 **SIRI** an Intelligent, GK, and personal assistant. Part of Apple-iOS which features a natural language UI to answer questions and perform web service request.

2012 **GOOGLE NOW** developed by google for google search mobile app it implies natural language user interface to answer questions, make recommendation and performs action by delegating request to certain web services.

2015 **ALEXA** voice service inhabiting the amazon echo device, ALEXA is cable of voice interaction, she uses natural language processing algorithms to receive, recognize and response to voice commands.

2015 **CORTANA** an intelligent personal assistant crafted by Microsoft, Cortana set reminders, recognizes the natural voice command and answers the questions using BING search engine.

2016 **TAY** designed to meme it the speech and habits of teenage American girl. Microsoft chatbot TAY rapidly develop a paranoia. She was shut down for 16 hours of existence and hasn't been heard from since.

## SYSTEM STUDY

### Purpose

This project-Chatbot which is called as "**Kudos Info**" is developed using Dialog flow SDK. The purpose of the chatbot is to help the user in finding their jobs opportunities for their career, and also can get any information regarding developer resume.

User can ask any questions based on my resume regarding developer's objectives, achievements, educational qualification, hobbies, strength and even my contact details, it can able to answer for your questions.

User can also have a small talk with Kudos when they're bored.

This project is developed with required intents and entities.

Main purpose of this project is to bring Multi language and Voice.

This chatbot is developed with ability to speak in Hindi and English languages.

### Machine Learning

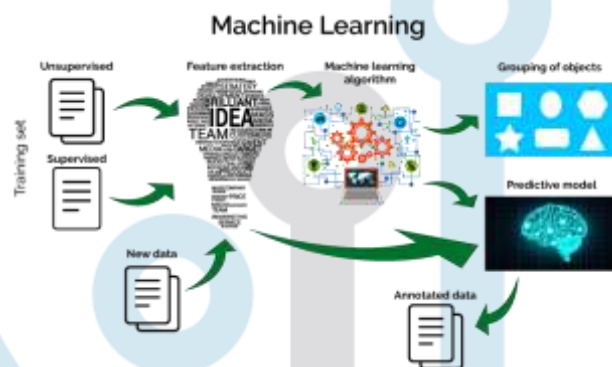
Machine learning is the tool that converts the natural language that the user interacts, which is understood by your agent into a structured data. In Dialogflow terminology, your agent uses machine learning algorithms to match user requests to specific intents and uses entities to extract relevant data from them.

An agent “learn” from the information and examples that the user provides in the training phrases section and language models which was developed by Dialogflow. Based on the data provided it creates a model (Algorithm) for making decisions on which the intent will be triggered by the user input and what data needs to be extracted. This algorithm is unique to your agent.

The algorithm adjusts dynamically according to the changes made in your agent and in the Dialogflow platform.

The Real Conversation logs trains your agent constantly to make sure that the algorithm keeps improving.

The machine learning algorithm for your agent is updated every time you save changes in intents and entities, approve changes in Training, or import/restore an agent from a zip file.



Machine learning algorithms are classified as: –

1. Supervised.
2. Unsupervised.
3. Semi – Supervised.
4. Reinforcement.

### SYSTEM MODULES

#### AGENTS

Agents are classified as Natural Language Understanding modules. They can be used by user app, product, or service to transform natural user requests into actionable data. This transformation occurs when a user input matches one of the intents inside user agent. The predefined or developer – defined components of agents which process the user’s request are known as the intents.

Agents are designed to manage a conversation with the help of the context, intent priorities, slot filling, responses and fulfillment via webhook. The diagram gives below shows the handling of a user request. An agent encompasses the Dialogflow components.

#### Create an agent

To create an agent, click on Create Agent in the left menu of dialogflow.

The screenshot shows a web interface for creating a new agent. At the top, there is a text input field labeled 'Agent name' and a blue 'CREATE' button. Below this is a section titled 'ADD SAMPLE DATA' with a dropdown menu. The next section contains two dropdown menus: 'DEFAULT LANGUAGE' (set to 'English - en') and 'DEFAULT TIME ZONE' (set to '(GMT-7:00) America/Denver'). Below these is a 'GOOGLE PROJECT' dropdown menu. The interface is clean and modern, with a light blue and white color scheme.

A Unique name for your agent can be choose and also set the relevant setting such as: -

**Default Language:** The user can set the default language for the agent.

**Default Time Zone:** The user can set the default time zone for the agent.

**Google Project:** The Google Cloud Platform (GCP) Project should be selected, if the user has an existing GCD project, the user can select it from the dropdown list. By leaving default option, it will create a new GCP project using the name of the agent.

## INTENTS

The mapping between what the user says and what action to be taken by the software is known as an intent.

Intent interfaces have the following sections:

- Training Phrases
- Action
- Response
- Contexts

The agent has three intents with certain specific training phrases which will help the software is trigger the intent.

### Training Phrases

Each expression said by the users can be in one of the two modes: Example mode which is indicated by the “ icon. Template mode which is indicated by the @ icon.

Each example is written in normal language and annotated so that the parameters values could be extracted. User can read more on annotation below.

To toggle between modes, click on the " or @ icon.

The examples are mostly recommended then the templates, because the machine learning learns faster and easier this way. And remember: the more examples user adds, the smarter agent becomes.

## ENTITIES

Entities is a powerful tool which is used for extracting parameters values from the natural language input. Any important data user wants to get from a user's request, will have a corresponding entity.

The entities used will depend on the parameter values in a particular agent which are expected to be returned as a result of the agent functioning. In other words, a developer can create entities only for these which needed for actionable data and does not need to create for every possible concept mentioned in the agent.

Intent	Training Phrases
Dog	"dog", "puppy"
Cat	"cat", "kitty", "kitten"
Mouse	"mouse"

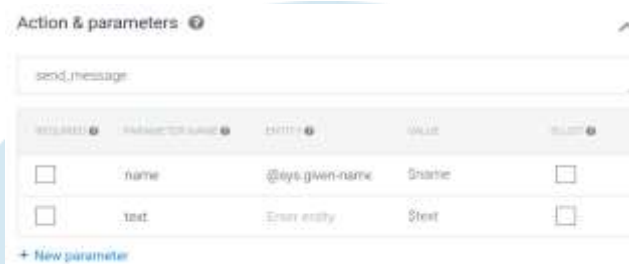
There are 3 types of entities: system (defined by Dialogflow), developer (defined by a developer), and user (built for each individual end-user in every request) entities. Each of them can be classified as mapping (having reference values), enum (having no reference values), composite (containing other entities with aliases and returning object type values).

## ACTION & PARAMETERS

The step that your application will take when a specific intent has been triggered by a user's input is known as an action. Action will have parameters for extracting information from the user requests and will appear in the below format in a **JSON** response:

```
{“action”:” action_name”}
{“parameter_name”:”parameter_value”}
```

In the action section of an intent both the action name and its parameters are defined. For example, if the user is creating an application for sending messages the action section should have the name of the action, as well as any parameters values that are automatically defined or manually added.



## RICH MESSAGES

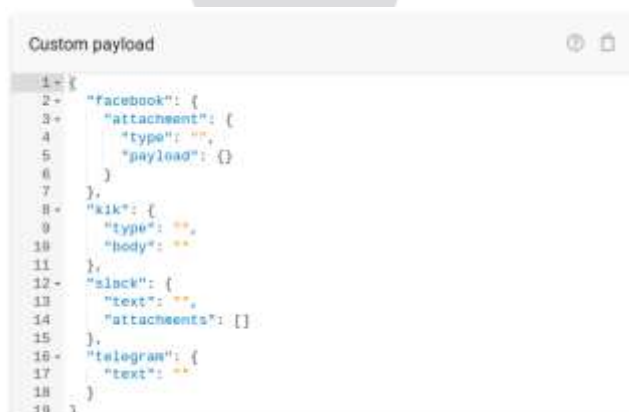
The user can add tabs for some of the supporting integrations in the response section. This allows the user to define default or integration specific response. In each tab, the user can add up to 10 of the same or different message types. The different message types are offered by the **DEFAULT** tab and the integration tabs. The integration tabs allow the user to add images, cards and quick replies.

Enable the respective integration on the integration page, to add integration tab or click on the + sign next to **DEFAULT** tab. Click the **ADD MESSAGE CONTENT** button to add message elements.

Your agent's response can consist of up to 10 sequential messages, you can re-order in the UI. If you create intents via the /intents endpoint, the order of messages will correspond to the messages array elements order.

### Types of Response:

1. Simple response/text response
2. Image
3. Cards
4. Carousel cards
5. Browsing carousel cards
6. Suggestion chips
7. Custom payload



## TESTING

### Testing in Action on Google

To test your Smart Home app, do the following

On Google Developer Console go to the Action and select your project.

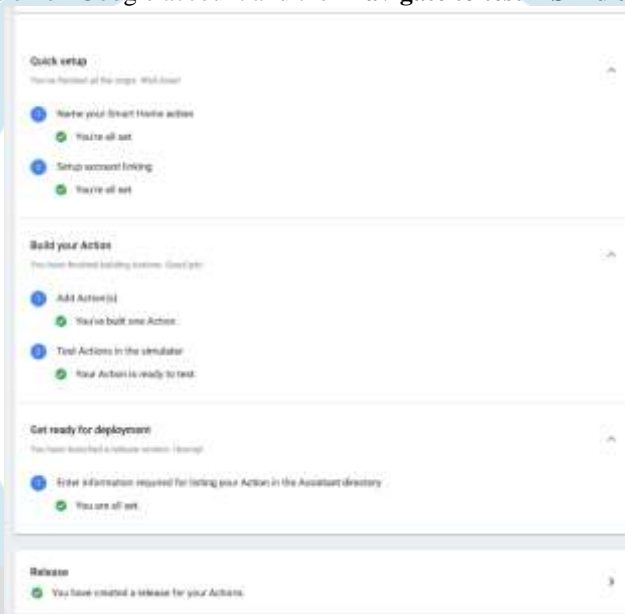
On the Overview page, follow each section and fill in all of the informational fields for your app; most of these fields will appear in the Assistant App Directory. Don't worry if you don't have all of the information finalized for your app. The user can also save the process by clicking on the **SAVE** button near the button of each page.

Pick **Advance Option > Account linking** on the left navigation. Here you can set up authentication so that users can link their accounts to your app.

Link the Google account to your smart home agent using the Google Assistant app and follow the steps given below:

- Access the Smart Home settings.
- Click the + button to add a device.
- Select your app from the list of providers.
- Sign in to your service.

To test your app, log in to your Action on Google account and then **navigate to test > Simulator**.



## CONCLUSION

The main objective of the project has been satisfied, the project is developed by making the best use of the software and hardware tools mentioned above. Thus, the system is very handy in nature, easily accessible and time efficient. The system has passed the test cases and is properly functioned. The unique feature in this project is that it encourages and accepts suggestion and complains from the students which is very important to improve the quality of education and increase the standards.

## SCOPE FOR FUTURE ASPECT

Artificial Intelligence is used by one another after the company for its benefits and its also a fact that artificial intelligence has reached in our day-to-day life with a breakneck speed.

### According to the survey results:

- In translating language, machine is predicted to be better than humans.
- A track running.
- By 2060, working in retail sector can completely outperform humans.

As a result, MI researchers believed that Artificial Intelligence will become better than humans in the next 40-year time frame.

Companies have acquired around 34 AI startups to built AI smarter. It was acquired in the first quarter of 2017 where these companies were reinforcing their leads in the world of AI.

AI is present in every square of life. AI is used to organize big data into different pattern and structures, these patterns also help in a neural network, machine learning and data analytics.

## REFERENCES

- [1] [www.stackflow.com](http://www.stackflow.com)
- [2] [www.fastcompany.com/3059439/why-the-new-chatbot-invasion-is-so-different-from-its-predecessors](http://www.fastcompany.com/3059439/why-the-new-chatbot-invasion-is-so-different-from-its-predecessors)
- [3] [www.ibm.com/watson/](http://www.ibm.com/watson/)
- [4] [en.wikipedia.org/wiki/Artificial\\_Linguistic\\_Internet\\_Computer\\_Entity](http://en.wikipedia.org/wiki/Artificial_Linguistic_Internet_Computer_Entity)
- [5] [en.wikipedia.org/wiki/Chatbot](http://en.wikipedia.org/wiki/Chatbot)

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