

FAQ Chat Bot

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Abstract- Chat bot is an AI-based service which can communicate with customers independently and without the involvement of an ‘alive’ representative. There exist many chatbots in the current internet but there exist no chatbot that helps in improving the user experience in websites. Our aim is to implement the chatbot in the websites that will be useful to improve the user experience. Our chatbot mainly replaces the frequently asked questions forum. We try to provide a FAQ chat bot with some special abilities like speaking and voice recognition. This was implemented using many APIs. But only few Browsers support voice recognition feature.

Keywords- Frequently asked question, Voice recognition, FAQ bots, chatbots, Talk bot, chatter, IM bot, Dialog flow, Speech API.

I. INTRODUCTION

The bots are first invented in early 1990's and the first chat bot is "ELIZA". The use of chat bot is to handle all kinds of simple situations like scheduling a meeting or processing an order. Now a days, most of the web based sites does not have any proper FAQ section. Sometimes the owner of the websites may missed out some user queries. These FAQ section can be replaced with the advanced and intelligent chatbots. Usually chatbot's are meant for enhancing the user interface design. Such chatbot's can also be used in resolving the user experience with the websites such chatbots are called FAQ chatbot. This will be helpful in improving the customer satisfaction, increase revenue and more over provide 24/7 services. These types of bots have their wide applications in customer service, sales and marketing, finally human resources.

As companies are exploring the use chatbots for customer service, one of the first candidates of "content" that come to mind to "BOTIFY" are the existing FAQs often represented on corresponding sections on a website. Still these chat bots are suffering from a serious drawback of less interaction with the user.

Most of the bots in the websites does not have speaking and voice recognition ability. These bots uses the

Artificial Intelligence and Machine Learning concepts. These technologies makes the bot more interactive and more logical.

II. WORKING OF BOT

Chat bots are just an interacting agents that are build to improve the user experience over the website. The bots are usually process the Natural Language (NL) to produce the output. There are several APIs for developing the chatbots. One of the best API for develop a Chat bot is Dialog Flow API from Google. The bots mainly use the Machine Learning ability to answer the user Question. We can interact with bot via voice or text. Now the bots also response via text or voice. The Speech Recognition APIs are used to make bots to speak.

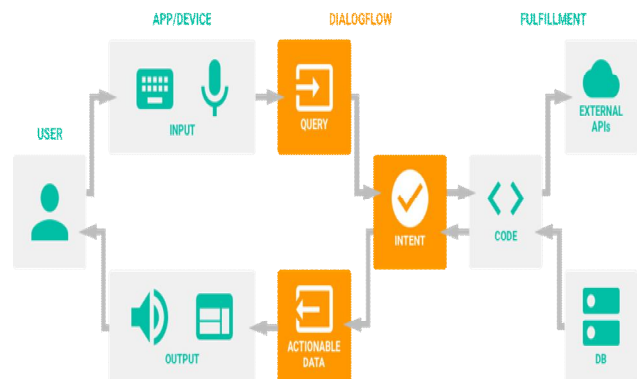


Figure 1. Working principle of Bot

According to the above figure, the user is directly interact with the bot agent. The bot then interact with the backend, the Dialog flow (API). This provide the actual NLP and Machine Learning activities. The API process the external user input and reply with the appropriate answer. This bot uses the device's native Mic and Speaker for input and output.

The Speech API is used to access the device's speakers and mic using JavaScript code in HTML5. The Web speech API provide necessary interfaces and methods. The programmer must import their intents and entities in the API dashboard.

A. Intents

An intent represents a mapping between what a user says and what action should be taken by our software.

Intent interfaces have the following sections:

- User says
- Action
- Response
- Contexts

III. MAJOR ELEMENTS IN DIALOG FLOW

The Dialog Flow has the following important elements:

A. Actions

An action corresponds to the step, the application will take when a specific intent has been triggered by a user's input. Actions can have parameters for extracting information from user requests and process the output in the JSON format. And the format is

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

Both the action name and its parameters are defined in the Action section of an intent. For example, if we are building an application for sending messages, the Action section would have the name of the action, as well as any automatically defined or manually added parameter values. The action helps to keep track of our intents.

B. Parameters

Parameters are elements generally used to connect words in a user's response, to entities. In JSON responses to a query, parameters are returned in the following format:

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

Parameters appear in two different areas. In the User Says section, parameters related to known entities will be highlighted (annotated) after an example is added. Clicking on an annotated word in an example, will reveal a table with data on the chosen entity.

C. Contexts

Contexts represent the current context of a user's request. This is helpful for differentiating phrases which may be vague or have different meanings depending on the user's

preferences, geographic location, the current page in an app, or the topic of conversation .

For example, if a user is listening to music and finds a band that catches their interest, they might say something like: “I want to hear more of them”. As a developer, we can include the name of the band in the context with the request, so that the agent can use it in other intents.

D. Events

Events is a feature that allows us to invoke intents by an event name instead of a user query.

First, we define event names in intents. Then, we can trigger these intents by sending a /query request containing an event parameter.

E. Dialogs

There are two types of dialogs to consider when building voice interaction scenarios:

- Linear dialogs - the aim of which is to collect the information necessary to complete the required action. (e.g. find the best hotel, turn on the right light bulb, or play the desired song).
- Non-linear dialogs - which may have several branches, depending on users' answers.

IV. IMPLEMENTATION AND RESULTS PROJECT SNAPSHOT

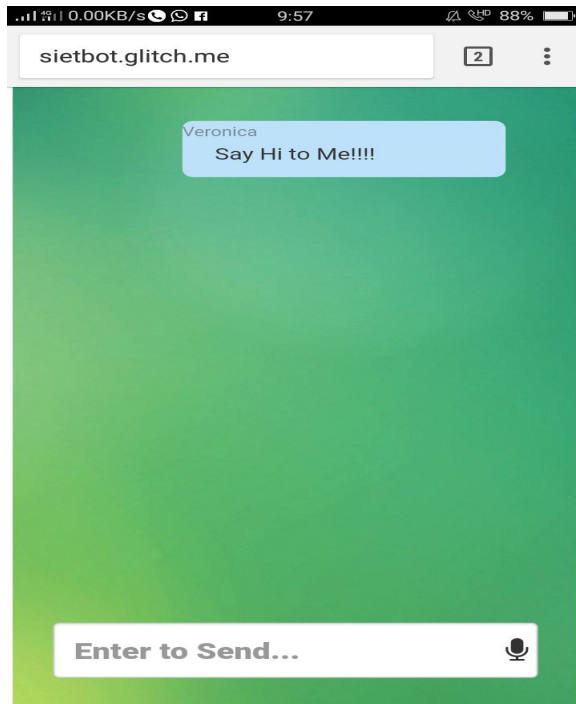


Figure 2. Implemented Screen shot (mobile view)

certain obstacles especially in terms of analytics and user engagement, which has to be thought of as the limitation of this project.

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V. CONCLUSION

The goal of this project is to develop a chat bot for frequently asked questions for a website with speech recognition feature. This bot was created using two GoogleAPI's(Dialog Flow and Web Speech API).Over the course of this journal, it was concluded that these types of speaking chat bots are very helpful in solving user queries.

Furthermore, based on the amount of investments in the concept of Chat Bots, and the number of software developers who join Chat Bot creation platforms and create Chat Bots consequently and the community behind the available tools for Chat Bot creation , it is concluded that chat bots are a lasting phenomenon, at least for the foreseeable future. The insight which argues that Chat Bots are a lasting phenomenon is only a conclusion based on the current information at hand and a best-effort prediction of the short term future, and therefore it should be treated accordingly.

Acknowledging that Chat Bots are here to stay is an insight of great importance. Given the number of users already active in messaging platforms, which are estimated to be more than one billion only on the Facebook Messenger platform alone, only proves the significance of opportunities for business owners, software developers and users in general.

The strength of this project was the FAQ Chat Bot with Speech Recognition concept. It is newly introduced in the Websites. However, Chat Botsbeing new proved to provide