PizzaBot - A Personal Virtual Assistant

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Abstract—Chatbots are becoming a big part in the lives of consumers and in the business. They have the potential to save a huge amount of time by interacting with the users based on some set of predened conditions, events or triggers. They are used in a diverse applications and locations like in websites, social messaging apps, banks, etc. Although the technology of chatbots or virtual assistance invented a long time ago, the industry has shown a remarkable growth of adopting chatbots in the past few years. Almost every Multinational company and businesses have adopted or are adopting chatbots to help them reach new heights in marketing as well as customer experience. We are developing a PizzaBot that will take orders from customers and then integrate it with Slack.

Keywords:- PizzaBot, Chatbots, SlackBots, Articial Intelligence, NLP(Natural Language Procesing), IBM Watson.

I. INTRODUCTION

In recent years, chatbot is growing faster for specic area of development and research. However, what is chatbot in actual way? Therefore, in general with the use of natural languages computer programs can deal and interact with the users so this way of interaction or communication is possible with chatbots. Furthermore, there are many number of application interfaces and programming frameworks provides chatbot such as Slack chatbot, Microsoft bot-skype, hip chatbot in category of enterprise or company, in addition others are telegram bot messenger, line bot messenger and facebook platform messenger as a category of consumer context.

Chatbots are now-a-days found everywhere, even when we do not notice them. The most common example of Chatbot is Siri, Google Assistant and even Bixby. They answer the question asked by the user and even perform tasks just by the command of the user. The increasing technology, i.e. Natural language processing, deep learning, machine learning, etc. there are many different kind of chatbots developed which are assigned to perform various kind of tasks. These bots are having the capability to reduce stress and utilize time effectively. The chatbots are becoming highly popular in many organizations as they can generate automatic answers and performs the tasks repetitively. The chatbots are mostly designed to perform chat-oriented or task-oriented roles. The chatbots that are task-oriented respond to the commands of the user and support them by performing some kind of task or program. While the chat- oriented chatbots usually engage the users in communication just like humans.

There is a special platform Slack that is now becoming popular to develop a Slack chatbot. These Slack chatbot also called Slackbots, are designed to handle a variety of tasks like sending reminders, notications to team members, gathering and analyzing data, and even boosting company morale. We have developed a PizzaBot in IBM Watson framework and will be integrating it with the Slack. It will computerize the task of taking order and reduce the time spend by customers in line to place their order. It is useful in pizza companies that get many orders and their employees have to take each order manually as then there will be no more manual order taking work.

II. LITERATURE REVIEW

Chatbots have become a thing that is found now in most of the companies. They help in making the tasks easier and faster. The idea of creating a Chatbot has been around for hundreds of years. The first chatbot ever developed was Eliza in the 1960s by a MIT professor Josph Weizenbaum. It was a simple kind of chatbot who would answer the questions (queries) from a set of predefined answers. In 1995, a famous chatbot was developed called A.L.I.C.E. It was a language processing bot and was able to gain many awards as the superior kind of bot in that time. In 2001, Smarterchild was formed which then evolved into Apples Siri and the Samsungs S voice. During the time span of 2010 to 2015, bots became very famous in many technology groups. The first in this was Siri in 2010, then Google Now in 2012, next was Alexa and Cortana in 2015. All these bots were capable of calling, texting, playing music, setting timers, searching through the internet as per the users request and many other tasks. At present, many companies have their own chatbot in their website that can answer simple questions of customers, take their queries and take their details for a call back.

In August 2013 Slack was developed and launched by Slack Technologies as a version of chatbot especially useful in organizations. Slack presents a main window for chatting flanked by a bar on the left offering various ways of being in touch [2]. It integrates various external services and helps in bringing all the means of communication in one place including Google drive, google docs, spreadsheets, etc. The

cofounder of Slack, Butterfield says that it is the least efficient way to send a message to the members of group in form of email. Slack also provides a search bar so that the person can search in the conversation using any specific word or a sentence. There are two types of messages ways one is channel in which the person can send message in the group. There can be many channels consisting of different people. It can be considered as a group having people as per their department. The groups can be public and private. Another means of messaging in the person is by sending a direct message and it is like a one to one communication without involving anyone else in the chat.

According to a research paper Slack takes over the newsrooms. The Slack bots can perform various simple and customized tasks that they are trained and coded for. These Slack bots can tell you about what to post on social media as well as it can talk to you about the elections[3]. A new bot was released by DiggBot for Slack, that will post articles and videos to catch up with you twice in a day. There are some commands that currently available in the version like fun, madness which would post you some article or jokes accordingly.

A research paper on Slack says that it has better usability on search and file sharing that allows users to be more successful in their jobs in turn creating more value and output [4]. Slackbot also offers to convert and import text files. If a user shares a file and collaborates it, then shared again, Slack considers it as two different files instead of considering them as one. Slackbot has automated welcome messages for the users and also helps in keeping reminders and ordering food.

An article on conversation bot discovery and response fusion shows that how the pizza bot should be, what is expected it to do, etc. It says that the bot should engage in the conversation with the user and give recommendation of what size and how many pizza would be needed to feed how many people. It will also provide them the time it will take to deliver the pizza and inform them about the latest and special offers. [5]

III. OVERVIEW OF SLACK

Slack is an American cloud-based set of proprietary team collaboration software tools and online services developed by Slack Technologies[6]. Slack at its core is like an instant messaging chatroom that allows organizations to organize the discussions by topic and by the groups as well as communicate and share documents. It was launched in the August 2013 by Slack Technologies. All the content used in Slack whether it is a file or conversation, is completely searchable. There are two type of channels that are offered in Slack: one is a public channel, which allows the members in the team or workspace to communicated with each-other without the use of email or group messages. While the other one is private channels that allows communication in small groups and a new user can only be added by the invitation send by the owner. Slack also provides facility to send direct messages to users in private rather than send all messages in the group chat.
Slack has eliminated the need of emails and /or group SMSs

by providing a platform where the users can communicate, share files, images, PDF, documents as well as spreadsheets[7]. Slack has also integrated with many third party services like Google Drive, Dropbox, GitHub, Zendesk, etc. which allows data sharing more convenient and easy. Slack has become an ideal application for multinational companies by making the office online such that it becomes easy to have a meeting, discussions or even general follow-up.

Feature of Slack:
- Easy, clear and understandable user interface.
- We can share documents and images.
- We can add users outside of organization to communicate.
- Slack provide facility to give notifications once messages are received and sent.
- We can do group communications.
- It provides many different emojis and GIFs.
- Receive and send message sent in Slack.

A. *what is SlackBot?*

Slack chatbot also commonly called slackbot are same as a chatbot, the only difference is that it is made inside a Slack. The Slackbot is a kind of help gadget of Slack that will continuously assist the user (team members) in form of direct messages or in a channel. These bots can be powered by rules or artificial intelligence (AI), natural language processing (NLP), and machine learning[1]. There are various activities that a Slackbot can perform in a company. They can act as direct sales assistant and can also allow employees place their order for food, other things without even requiring them to leave the slack channel. Slackbots also act as a revenue generating tool for companies and also helps them in saving their time and money by performing many tasks by itself.

Feature of Slack Bot:
- Respond to user commands.
- process natural language
- Perform useful tasks on command (for example, fetch data from external source)
- Insert custom data into Slack via webhooks and slash commands
- Scheduling remainders
- Printing a list of all users in a channel
- sending feedback to Slack

B. *Why are we choosing slack?*

Slack is built with a motivate to enhance user productivity and this is a priority for companies right now. Lets look at some of the advantage of using Slack:
- It helps the users to keep their work life separate from their personal life by organizing the team conservations onto a separate work app.
- It offers a whole lot of integrations with tools such as Github, MailChimp, Facebook, Twitter etc. These tools will helps us integrate on our chatbot which we are about to build.
- It has a simple working and helps keeping privacy for some messages.

Pros:
- It is simple to set up and also provide permission levels for the chats
- Creating channels eliminates the need of meeting
- It allows searching the conversation and reviewing them
- It provides free version that allows searching the chat upto 1000 messages.
- It is possible to add extensions like Google Docs, Google Drive, DropBox, Spreadsheets, etc.

Cons:
- Often it might delay for notification of messages.
- the cost of license is more
- connection and reconnection get tangled up sometimes
- to share a file, it needs to be uploaded and downloaded by the recipient and it take more time

IV. ARCHITECTURE OF SLACK BOT
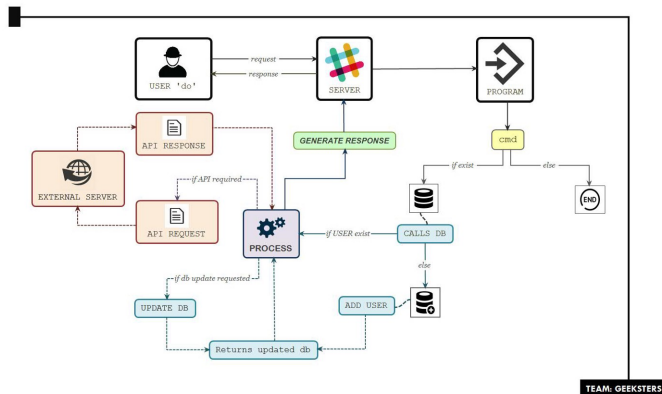
If we explain the architecture of slack bot then we can consider the following procedure:

Whenever user sends the request, it will redirect to the server and then to the program. if the respective response is available according to the request program will be executed otherwise it might show an error. if the respective response is available in the program then the program will check whether the user exist in database or not. if the user is exist in database then next process will be executed else user will be added to database further if the API require then it will called, the API response will collected from external server and then merged with main response. the final respond will be send to user.

V. WHAT IS A PIZZABOT?

In todays world, people love eating pizza and going out with their friends and family to have pizza. However, what people do not like is waiting in line for placing their order. The PizzaBot that we have developed will remove that problem. It is a Slackbot that is developed as per the requirement and customization. It will take orders from the people and provide them options like what modification they want in their pizza like the crust or toppings on the pizza. It is developed in IBM Watson as a framework and then using the integration key provided for the application it will be integrated with Slack. The benefit of this PizzaBot will be that even when people are at work they can order pizza in their work place. So they wont have to go out or neither they would have to wait in line for ordering.

VI. WORKING OF PIZZABOT

We have developed the Pizzabot and trained it on many conditions to give answers to the customers question and help them in placing the order. The flow of our chatbot is very simple and does not have many conditions in it. The user is given options in the topping, crust and base sauce. The customer can reset the chat at any time.

Flow of the Conversation
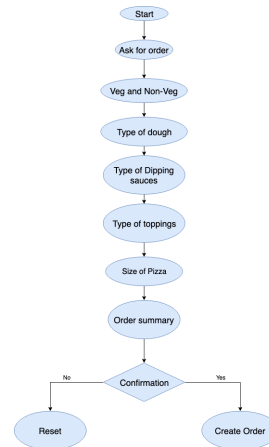
VII. DEVELOPMENT

This section explains steps and actions which are needed to develop and implement your own chatbot in Slack platform. This section is going to split in subsection in order to show the whole development process of a personalized Slckbot from a scratch. The subsections are as follows:

1) Create the Slack App.
2) Creating the IBM Watson account.
3) Creating a new IBM Watson assistant.
4) Developing the assistant.

A. Create the Slack App

The very rst of developing and implementing your own bot is to create one Slack Application. One can create the account on Slack platform and then create one workspace. You need to give the name of your workspace. We created Kung Fu-Panda workspace to implement our chatbot. You need to enter your email address and after authenticating your email address it will allow you to create a new workspace.
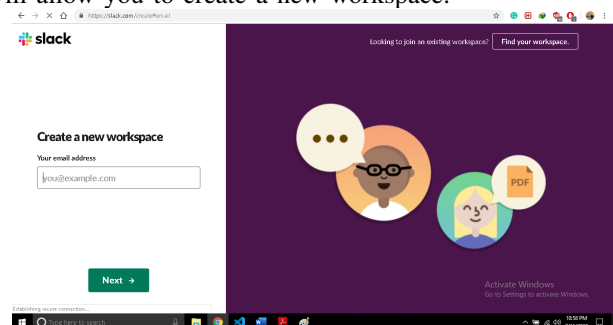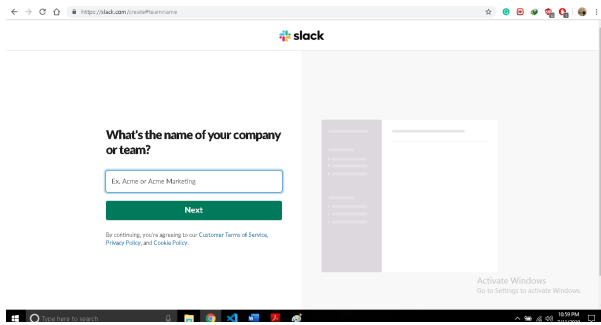
B. Creating the IBM Watson account

The next step is creating an IBM Watson account by providing the email id, first name, last name, country and password. It will send a verification mail that will enable the account.

C. Creating a new IBM Watson assistant

After verifying the account, it shows the screen where we can develop the assistant. It will ask for the name of the assistant and a description of the assistant and it is not mandatory. The description can be about why it is developed or what the function of the assistant is.

D. Developing the assistant

There are various important things that will be required for developing and training the assistant.

1) Setting the intent: It is the intention of the question that the user will ask the bot. For example if the customer says Hi it will be counted as a greeting, next if the customer does not understand it he/she can ask question like I dont understand or help this will be counted as help.

2) Developing the entities: It is the main part where the keywords are added according to which the question or comment of the person will be classified. For example if the customer types the size of pizza i.e. small, medium or large, it will be classified as the pizza size.

3) Setting the dialog: Now the dialog will be configured. It is what response the chatbot will give the user when it encounters the specified entity or intent. According to the coding done and the entity and intent linked with it, the corresponding dialog will be displayed.
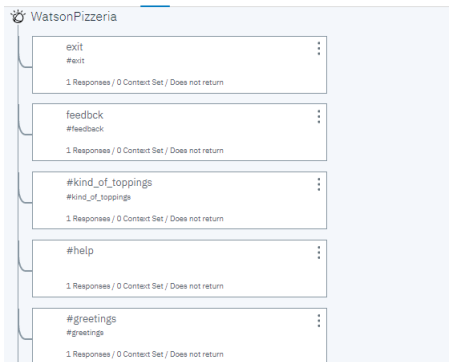
VIII. TESTING

Here is an example of how we have done testing of our PizzaBot. We have added an intent of greeting that would catch the intent defined 'Hi' and 'Hello' and according to that we have defined the dialog 'welcome'. If the user enters anything that is not defined in the intent it will show an error that 'I didn't understand. You can try rephrasing.'

Below is a example of how we have tested and improved our chatbot. The first image shows that we have created an intent with only 2 intents.

In the next, we created the dialog that will print the specified output when it encounters the defined intent.

If the user inputs a message that is not defined in the intent then the error message will be displayed.

We have given this bot for testing to 5 to 6 people to chat with it and place the order. This helped us in understanding what kind of replies the user would give and trained our bot

according to that. This took a long time in training the bot as we had to make changes as per the comment of each user that was not defined in the system.

IX. DEMO

A simple chat conversation that consists of asking the customer about the size, toppings, base sauce, the crust and confirming the order at the end by showing the summary.

This shows that how the Pizzabot will respond when the customer will say 'no' in the confirmation.

This shows that what will the Pizzabot will respond when customer wants to 'reset' their selection.
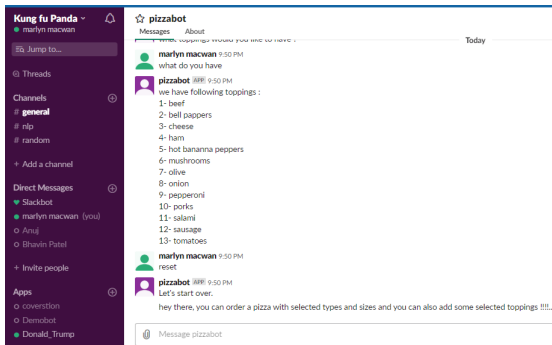
X. FUTURE WORKS

1) The Pizzabot can be used in Pizza shops to simplify their work.
2) Other features like confirmation mail can be added in the system.
3) The system can be modified to show customers if there are any offers going on.
4) The prices of the pizza and the combos can also be added.

XI. CONCLUSION

As we discussed brief information about slackbot and chatbot that slack is hub or we can say tool for messaging with number of features. In nut shell we can say that these type of chatbots or slack chatbots might developing for most capable communication and information gathering platform and tool in the next technological future. Our PizzaBot can take order of the pizza for the staff that are working in any company. The companies can integrate their slackbot in their Slack application so that it becomes easy for them to order food without standing and waiting in long lines.

XII. REFERENCES

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