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BUILDING ARTIFICIAL INTELLIGENCE CHATBOT, WITH HELP OF DISTRIBUTED DATA ANALYSIS.

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Abstract: The appetite for natural language solutions continues to grow as businesses realize the value that a good digital AI assistant can deliver in terms of the ability to further automate business processes, reduce costs, and improve overall business results. Despite suffering chatbot failures, many organizations are undeterred in their AI journey, choosing to forge ahead rather than abandon their efforts. o' 1g'

Different people have their own way of typing a message (short sentences, long sentences). So how to understand the user intention.o'2g'

Keywords: Chatbot, Operator, Intent, Entity, IBM Watson Assistant

I.INTRODUCTION

Building chatbot similar to human in the initial release not possible. First need to get a few chats of human operator and users (customers). Then chats should be split into scenarios. One by one scenarios are begun implementing. While creating chatbot need to define intents and entities.

Within a chatbot, intent refers to the goal the customer has in mind when typing in a question or comment. While entity refers to the modifier the customer uses to describe their issue, intent is what they really mean. Intent is a critical factor in chatbot functionality because the chatbot's ability to parse intent is what ultimately determines the success of the interaction.[3]

In any case, after creating ideal intents and entities, they will not allow creating a smart chat bot, because a person can say his thought in different ways, and the bot has a limitation in understanding. To achieve this, new intents and entities must always be added.

For the development of a chatbot, it is necessary to add functionality to transfer the chat to a human operator and vice versa. But not only transfer the chat, but also enable the operator to read the dialogue between the chatbot and the user. The operator can then formulate the user's response to allow the bot to continue chatting.[4]

II.CHATBOT MODELS

The general model will be described as following. In the Pic. 1 can be seen the base model of chatbot and human operator interaction structure
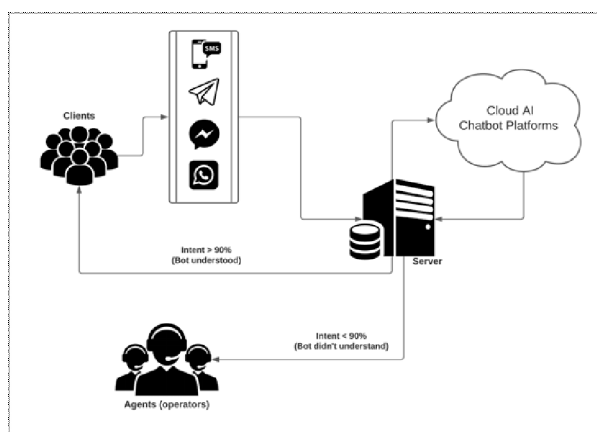
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Fig.1 Base model of Chatbot and Human Operator interaction.

Customers can start chatting via SMS, Telegram, Facebook Messenger, Whatsapp or any other messenger. Their chat will be directed to the server, it stores customer data in databases and connects to chatbot platforms to analyze customer input and respond with an appropriate response. All actions will go through the server. If the bot at some point does not understand the client's input, the conversation will be transferred to live agents (operators). It can be determined by intent, if the confidence in intents is more than 90%, this means that the bot understands, if less, this means the need to transfer to Live Agents.[5]
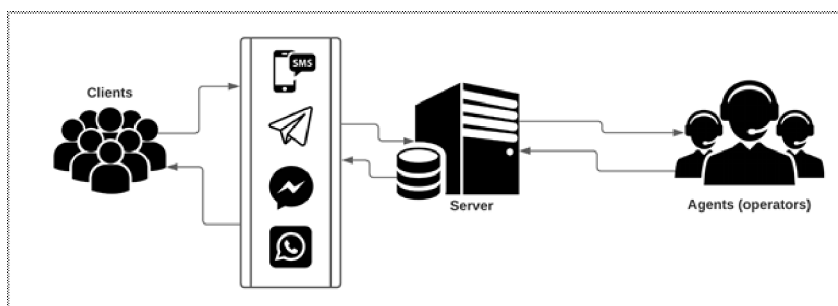

Fig.2 Conversation between Clients and Agents, when bot didn't understand

After switching the chat to Live Agents, the agent determines that this client has a very long text, and if it can be replaced with several words with the same meaning, the agent can rephrase the data entered by the user and return the conversation to the bot. The conversation can be continued through the bot. This makes it possible to process complex texts from clients and helps the bot to understand. When the conversation is transferred to the Live Agent, the chat history will be visible to the agent, which makes it possible to analyze the conversation and the response to the client without asking the previous question that the bot has already asked.
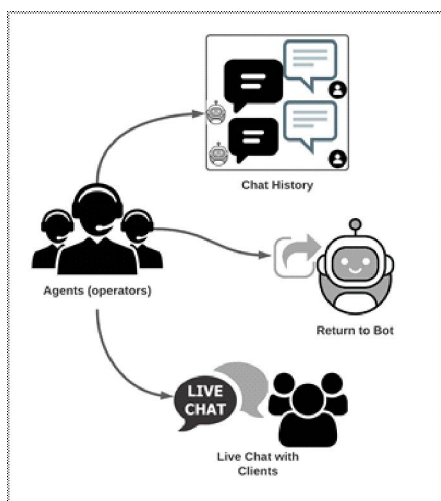
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Fig.3 Features of Live Agent

In the Fig. 3, can be seen the features of a live agent who can see the history, return the client back to the bot and communicate to the end with the client himself and close the chat.

During the conversation between the client and the chatbot, the server collects information about the client, for example: name, problem, final proposal of the bot, phone number, date, time of chat creation and chat history. After the chat ends, the server generates an email template with customer information and a link to display the chat history and sends an email to the appropriate people (managers, supervisors). In addition to sending e-mail, all data will be saved in the database to display reports and various statistics.

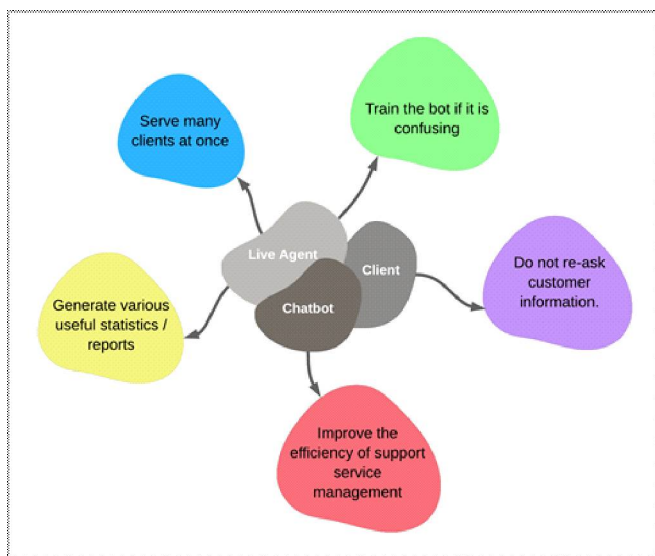## III. RESULTS
With this chatbot structure, can be achieved:

Fig.4 Summary of achievements

References

1."4 Reasons for Enterprise Chatbot Failure and How to Overcome them using a Multi-Bot Approach," ServisBOT AI, 16-Apr-2021. [Online]. Available: https://servisbot.com/four-reasons-for-enterprise-chatbot-failure/. [Accessed: 22-Apr-2021]

2.Alpana, "Challenges with Chatbots - not just technical," Medium, 19-Mar-2017. [Online]. Available: https://chatbotslife.com/challenges-with-chatbots-not-just-technical-ecb39612422f. [Accessed: 24-Apr-2021]

3."What is Intent in Chatbot?," Helpshift, 19-Apr-2021. [Online]. Available

4.Boltayev B.R., Xujayev O.K. "BUILDING STRUCTURE OF DATABASE WHEN USERS INTERACT WITH CHATBOT PLATFORMS". The value of information and communication technologies in the innovative development of sectors of the economy, pp. 281-282, 2021

5.B.R. Boltayev, D.J. Xujamov "Analyzing data in the scope of chatbot with help of akka persistence", The Problems of application of modern systems and technologies of training in the preparing of highly qualified personnel in current state, pp. 82-85, 2021