

Messenger Bot for Business Interaction

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Abstract— Chatbots are computer programs that simulate intelligent human conversation. The aim of this project is to explore commercial applications of Chatbot.

There are typically three parts to any chatbot. The typed input from the user in natural language, the typed or spoken output from the chatbot and the process of passing the input through the program so that an understandable output is produced. This whole process is repeated until the end of the conversation is reached.

AI messenger bot can be Efficient to interact with customers and can be calibrated to the needs of a variety of business applications. Messenger bot will be a modern means of assistance to user provided by businesses and institutions to help improve the customer service and customer relations.

Index Terms—Artificial intelligence, chatbots.

I. INTRODUCTION

In this day and age, most business ranging from small independent industries to large multinational companies have their very own social media page or account to keep in touch with their customer base and keep them updated on the latest happenings. However this sort of interaction is mostly one way since such pages and accounts couldn't possibly reply or follow up with every individual or customer who enquire on such platforms via the messenger provided by that platform. Thus, to make customer support and customer interaction more convenient, we plan to introduce Messenger Bot for business interaction. Currently there is now such tools to individually reply to the masses on a social media platform. We aim at addressing this problem and providing a solution to several businesses out there who face the same issue.

II. LITERATURE SURVEY

1. Commercial Chatbot: Performance Evaluation, Usability Metrics and Quality Standards of ECA.^[1]

Karolina Kuligowska

The aim of this paper is to explore commercial applications of chatbots, as well as to propose several measurement metrics to evaluate performance, usability and overall quality of an embodied conversational agent. On the basis of these metrics we examine existing Polish-speaking commercial chatbots that

- a) work in the B2C sector,
- b) reach the widest possible range of users, and

c) are presumably the most advanced commercial deployments of their creators.

2. Evolutionary Sentence Combination for Chatterbots^[5]

Dana Vrajitoru and Jacob Ratkiewicz

Chatterbots are computer programs that simulate intelligent conversation. They make use of various techniques such as pattern matching, indexing, sentence reconstruction, and even natural language processing. In this paper we present an approach to chatterbots that mixes pattern matching with indexing and query matching methods inspired by information retrieval. We propose a model in which new sentences can be produced from existing ones using an evolutionary algorithm adapted to the structure of the natural language.

3. Chatterbots with Emotional Response^[3]

Dana Vrajitoru

Chatterbots are computer programs that simulate intelligent conversation. They are situated between games and toys, as their aim is mostly to be entertaining, but the user doesn't have to follow precise rules when playing with the program. Currently business and educational applications have started to emerge as a further development of the idea of intelligent dialog.

4. Evaluation of virtual human dialogue systems^[2]

Kallirroi Georgila, Alan W. Black, Kenji Sagae and David Traum

The current practice in virtual human dialogue systems is to use professional human recordings or limited-domain speech synthesis. Both approaches lead to good performance but at a high cost. To determine the best trade-off between performance and cost, we perform a systematic evaluation of human and synthesized voices with regard to naturalness, conversational aspect, and likability

5. The unfriendly user: exploring social reactions to chatterbots^[6]

Antonella De Angeli, Graham I. Johnson and Lynne Coventry

This paper presents a preliminary evaluation of Alice, a chatterbot designed in order to elicit anthropomorphic attributions and emotional reactions from those who chat to 'her'. The analysis is based on both transcripts of the interaction and user comments collected in a focus group. Results suggest that the introduction of explicit anthropomorphism in Human-Computer Interaction (HCI) is a complex phenomenon, which could generate strong negative reactions from the part of the user.

6. Chatterbots: Crash Test Dummies of Communication^[7]

Leena Saarinen

This is a research of graphical multi-user communication environments. I have studied the interactive behavior of and between humans and chatterbots. First I will describe the emotional and behavioral impacts that a chatterbot can provoke in users as individuals and as members of a group. Sometimes it is not self-evident to recognize who in a chat room is a bot and who is human.

7. Social perception in human-chatterbot interaction^[4]

Antonella Di Angeli

Imagine a future world where humans and machines will be involved in joint activities requiring social skills. This paper presents an overview of the dawnings of this world, concentrating on chatterbots – computer programs which engage the user in written conversation – and their users. Drawing upon Clark's theory of Language and the psychological theory of self-categorisation by Turner, it presents an analysis of social reactions to chatterbots and a taxonomy of the technology.

III. REQUIREMENT ANALYSIS

3.1 Scope

Messenger Bot for Business Interaction can be implemented in several social media platforms and other messenger apps. Its application can range from customer service to selective marketing. It would reduce the cost of manpower and resources utilized by customer service and public relations substantially. Above all, chatbots can respond to multiple users simultaneously, increasing the overall efficiency. Messenger Bot for Business Interaction also makes it easier to build a chatbot thus making it possible to mass produce bots for various uses and applications. The objectives defined by such a system are defined as follows:

- Reduced manpower and resource usage
- More efficient public relations
- Convenient communication medium

3.2 Hardware and software analysis

3.2.1 Software Requirements

- Microsoft Windows XP/2000 or higher
- PHP 5.5
- MySQL 5.x
- Laravel framework

3.2.2 Hardware Requirements

- Intel Pentium 4 Processor or higher
- CPU minimum 1GHZ
- Minimum 256 MB of RAM

IV. PROPOSED SYSTEM

The Messenger Bot for Business gives the ability to have conversations with people on Messenger. Messenger Bot can be used to create an automated customer service agent without the use of expensive resources.

The Chabot system takes textual input from users through Facebook's messenger and then produces a relevant response.

A PHP website will be used for the purpose of interacting with client pages and altering them and develop a Messenger Bot tailored to their needs. This will be done by using Laravel 5.2 framework. Since Facebook APIs are now open source and available for development, it is now possible to fetch messages from Facebook's messenger.

This fetched message will then be analyzed for keywords and then it would either be searched for a valid response in the database for custom variables or the user statement may be answered by the variables available in Facebook's API itself depending on the statement.

The website would consist of a GUI that would let clients/vendors/users request for Messenger Bot for their particular page. The account generated pin (known as developer id) for that particular page is obtained after which alterations are possible. The user(i.e the page holder) can opt for custom variables in addition to the numerous variables provided by Facebook.

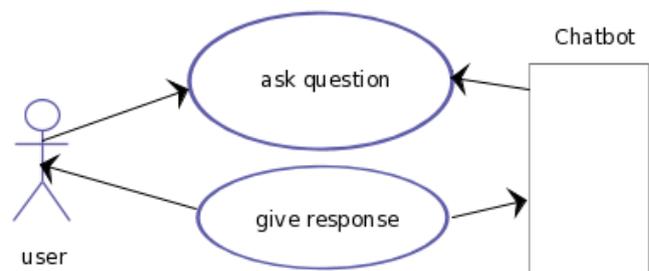


Fig 1. Use Case Diagram

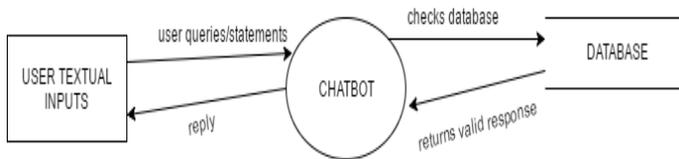


Fig 3. DFD level 0

V. CONCLUSION

Thus, Messenger bot for Business Interaction addresses the growing industry need of automated chat bots and also explores social media and messaging platforms as potential implementation fields. It has the potential to drastically revolutionize customer service industry and can be used for selective marketing. Messenger Bot can be implemented in a wide variety of fields.

Bots allow users to interact with services as if they're sending a message to another person. There's a smaller learning curve for the user, bots are simple to connect to, and they are implemented right where 100's of millions of users already spend a lot of their time - inside facebook's messaging app. In this day and age, most business ranging from small independent industries to large multinational companies have their very own social media page or account to keep in touch with their customer base and keep them updated on the latest happenings. However this sort of interaction is mostly one way since such pages and accounts couldn't possibly reply or follow up with every individual or customer who enquire on such platforms via the messenger provided by that platform. Thus, to make customer support and customer interaction more convenient, we plan to introduce Messenger Bot for business interaction. Currently there is now suck tools to individually reply to the masses on a social media platform. We aim at addressing this problem and providing a solution to several businesses out there who face the same issue.

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