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USAGE OF CHATBOT AS A NEW DIGITAL COMMUNICATION TOOL FOR CUSTOMER SUPPORT: A CASE STUDY ON BANGLALINK™

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INTRODUCTION

Since the inception of technological innovation, companies are trying adapt with the changing business environment. With the sequence of time, more advancements have been made in information systems and it has already started improving customer engagement so that global network is established. Now a days, organizations are not limited to offer and provide their services even only for local customers rather their target customers are linked from throughout the world. Due to this customers engagement is a key issue for surviving in the market comparing to competitors. Therefore, by using social media platform, organizations always ready to get in touch with their targeted customers. As a telecommunication service provider, Banglalink™ recently lauched their ChatBot system called **"MITA"** on October, 2018, which is an AI and integrated 24/7 virtual assistant that enable customers to get their necessary customer supports through Facebook Messenger (Banglalink , 2019).

PURPOSE/OBJECTIVE

The main objective of this study is to introduce ChatBot system used in telecommucation sector so that students are aware of newly adopted AI and to know how it works behind the system. Very specifically, this study will help students get to know how practical orientation is followed besides their academic knowledge.

METHODOLOGY/DATA SOURCE

This case study was formulated based on secondary data sources. Data was collected from websites, published reports and press releases. In addition to the above sources, published periodicals were also used.

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CASE

Background of Banglalink

Banglalink™ is the second largest cellular service provider in Bangladesh after Grameenphone. In September, 2004, Orascom Telecom Holdings purchased 100% of the shares of Sheba Telecom (Pvt.) Limited ("Sheba"). Afterward it was re-branded and launched its services under the "Banglalink™" brand on February 10, 2005 (Joy, 2015).

When Banglalink™ entered the Bangladesh telecom industry in February 2005, the scenario changed overnight with mobile telephony becoming an extremely useful and affordable communication tool for people across all segments with innovative and attractive products and services targeting the different market segments; aggressive improvement of network quality and dedicated customer care; and effective communication that emotionally connected customers with Banglalink™. The Objective of the company is to ensure telecom facility for all people of Bangladesh with minimum cost (Joy, 2015).

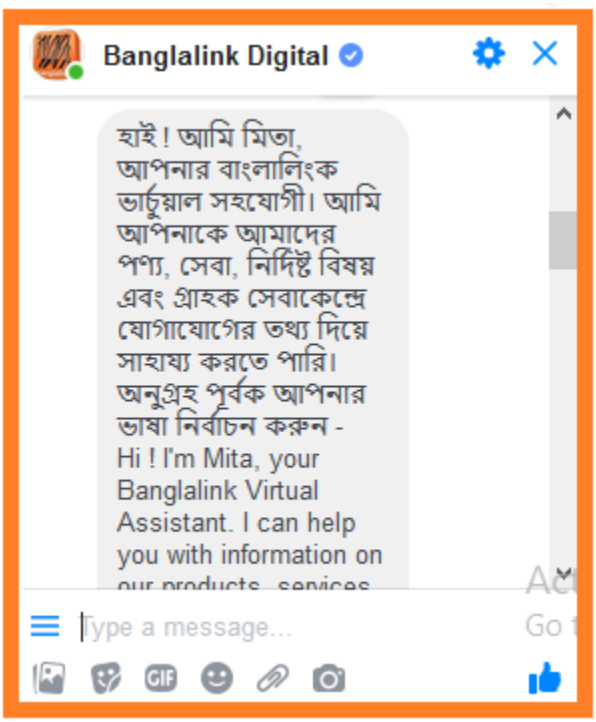

Figure I: Bangalink MITA Charbot screenshot, Source:Facebook

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What is a ChatBot ?

The term "ChatBot" was originally coined by Michael Mauldin in 1994 to introduce these conversational programs (Hayes, Richard, & Korf, 1994). Now a days, most chatbots are accessed through virtual assistants, for example, Google Assistant and Amazon Alexa, via messaging apps like Facebook Messenger or WeChat, or using specific organizations' apps and websites (Orf, 2016). Chatbots are classified based on usage categories such as conversational commerce generally known as e-commerce via chat, analytics, customer support, design, education, finance, health, HR, marketing, news, shopping, social, sports, travel, utilities and so on (Baron, 2019).

ChatBot is described as software which can chat with people by using artificial intelligence (AI). These software perform tasks including quick response to users, informing them about the products, helping to buy products and services to provide better customer service (Albayrak, Özdemir, & Zeydan, 2018). In other way, chatbot is a piece of software, conducts a conversation via auditory, textual methods (Chatbot, 2019). These types of programs are often premeditated to compellingly simulate to show how a human would behave as a conversational partner (Bradeško & Mladenić, 2019). A few Chatbots are used in dialog systems for numerical practical purposes like customer service or information acquisition, few use sophisticated natural language processing systems, although many simpler ones do scanning for keywords within the input, afterwards, make a reply with the most matching keywords even with the most similar wording pattern stored in a database (Bradeško & Mladenić, 2019).

Banglalink™ ChatBot MITA

Banglakink customer service plays crucial rule to solve customers' problem. It is often the most resource-intensive department within a company, consuming lots of financial resources a year to change the entire perception customers hold. Support staff spend a lot of time answering questions via telephone or messaging applications to make sure are customer satisfied with their business. This traditional customer service has two problems: First, staff usually receive repetitive questions asked by a variety of customers, which can be cost-effectively answered by machines. Second, it is difficult to support 7×24 services, especially for most non-global businesses. Most of the time, customers need to wait online to get a support staff person's answer, which is less effective and difficult to scale up. Meanwhile, customers may have privacy concerns about the conversations, hence conversations with customers cannot be easily leveraged to train a chatbot. It is essential to find large-scale and publicly available customer service data sources on which to build such assistants. Therefore, MITA can be a great way to

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supplement customer service offerings since they are more economical and free up support staff to answer much higher value queries.

"MITA" improves customer care experiences by ensuring instant response to customers' queries about packages, offers, recharges and many more. Since Banglalink equipped with auto-learning capacities, it continues to develop an effective service mechanism which capable of responding aptly to customers' queries (Banglalink , 2019). The service has been launched due to the growing number of internet users in the country as well as their demand for a more interactive customer care service (Hossain, 2018). Besides this, MITA is fast and easily accessible and this automated service will enable users to get their desired answers promptly (Hossain, 2018).

Though Banglalink MITA provides enhanced and faster customer support through the cognitive Ai enabled chatbot, some features of the chat sessions needs to be fine-tuned in order to provide a more realistic and engaging chat sessions. Many Bangla phrases and short form of text is not yet recognized by the chat engine and hence it can lead to dissatisfaction. As web enabled chat sessions become more common way of interaction between telecommunication service providers and the registered clients, people would expect more from a customer support chatbot. Keeping this expectation of uses in mind, MITA should undergo a thorough review process on a regular basis for continuous improvement. Let's chat with Banglalink MITA to experience it firsthand!

Features and Structure of MITA

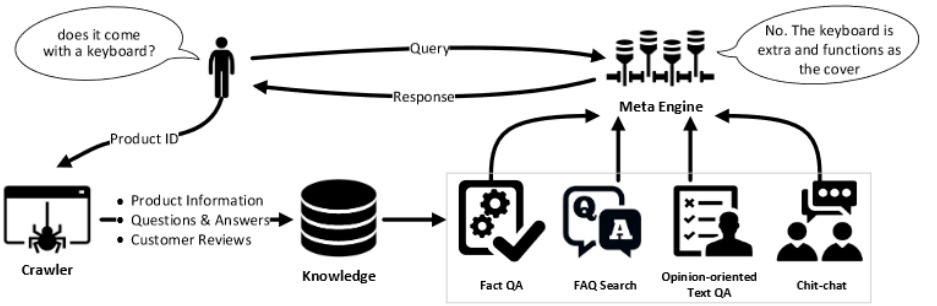

Figure II: System overview of chatbot – MITA

MITA feature I: Fact QA for Product Information

The fact QA engine is designed for answering questions regarding the facts of the product. The product information is stored in the format of knowledge triples #, attribute name, and attribute value, where #represents the product name in our scenario. We focus on simple fact inquiry in this paper. As a result, the task is

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transformed to matching the question to the attribute names in the product information.

MITA feature # II: FAQ Search for Customer QA Pairs

The FAQ search engine is defined as follows: given a set of QA pairs. For example, given two QA pairs:

Q: Will I get Internet bonus for this package?

A: No. The internet bonus is not included. You will receive only talk time bonus.

Q: Is this package still available?

A: Yes, it is. Top up 29 taka, and the package will auto activate.

MITA feature # III: Chit-chat Conversation Modeling

The chit-chat engine is mainly designed to reply to greeting queries such as "hello" and "thank you", as well as queries that cannot be answered by the previous three engines, such as "you are so cute". However, general chit-chat engines tend to be topic-deviated so that the replies may be irrelevant. To avoid such deviations, the chatbot follows the smart reply approach for email reply suggestions to predefine a permitted response set.

MITA feature # IV: Meta Engine

For each query, MITA will call the above- mentioned sub-engines in parallel. The meta engine is then used to merge and prioritize the results from the different engines. MITA uses a simple strategy to implement the meta engine, which prefers results from the engines in order of fact QA, FAQ search, text QA and chit-chat engine according to tunable threshold.

Customers/ Queries Served through MITA

Banglalink MITA did play a great role so far regarding providing customer support and custom queries in a faster and efficient manner. The automated chatbot saves a lot of time of customer service agents from Banglalink's end and at the same time the query responses to customers on the web was done much faster than ever before. The table below will give us some insight regarding the service improvement after using MITA

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Timeline	Q1:2018	Q2:2018	Q3:2018	Q4:2018	Q1:2019	Q2:2019
No of Facebook Queries Served	24875	26254	30457	30698	32084	33779
Average Initial Response Time	22 sec	19 sec	18 sec	2 sec	2 sec	2 sec
Average Chat Session Length	5 min	6 min	5 min	2 min	1 min	1 min
No of Automated Responses Delivered	0	0	0	14587	28594	29141

Figure III: Service Improvement through MITA, Data Source: Banglalink

From the above table it is clearly reflected that the use of automated chat sessions through MITA plays a great role to improve customer support quality for Banglalink. After introducing the chatbot in October, 2018 – average initial response time, chat session length has gone down significantly. At the same time total no of automated chat responses delivered has also gone up gradually.

CONCLUSIONS

In case of MITA, it did work as an agent that interacts with users using natural language. This case study overviewed Banglalink's web enabled chatbot in terms of the knowledge base and its pattern matching technique. The main lack in MITA and other chatbots is the manual developing of its knowledge. Different corpora were used to retrain MITA which reveals other useful applications of a chatbot rather than an entertainment tool. A chatbot could be used as a tool to animate or visualize a corpus, to learn/practice English, Bangla or other languages, and to access an information portal to provide answers to questions.

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QUESTION FOR REVIEW (BY STUDENTS)

- What is a chatbot? How a chatbot operates?
- What benefits do you think Bna glalink obtained after launching MITA app/chatbot in Banglalink official facebook page?
- What other businesses or services sectors can introduce chatbots for business operations? Do you think the future of chatbots is viable? Why or Why not?
- Can you compare MITA with other chatbot systems used by telecommunication service providers both in local and global platform?

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