Automation in Information Technology

Kumkum Saxena (Assistant Professor)[1], Manav Vikas Bahl (S.E, I.T, Student)[2]

1,2Department of Information Technology, Thadomal Shahani Engineering College, Bandra, Maharashtra, India.

---***---

Abstract - *Automation in the field of Information Technology started in 1996, and the drastic advancement has become the most accessible tool to adapt. It ranges from carrying complex algorithms to performing simple tasks over the mobile phone. Artificial intelligence, machine learning, and API's use are responsible for the responding ability of such robots over the backhand. Conversational bots serve as a boon to the field of E-commerce by helping the customers to reach relevant information easily. Such services easily blend with the websites and help the company track the trends of the services often used. This paper concentrates on the making of conversational bots and implementing them over the user-friendly interfaces. It also provides comprehensive information about services and how to implement them to automate daily functions.*
*Key Words***:** Automation, Bots, Technology, Services.

1. INTRODUCTION

Providing services to the end-users is the most crucial step for keeping the customer inclined to the same company. To maintain a healthy relationship, the company must ensure providing timely maintenance and quick troubleshooting. Irrespective of the business being on a small scale or a wide-scale, the workforce's utilization in customer service is always expensive. Also, appointing staff for troubleshooting problems increases the expense. In this modern era, where the field of Information Technology is creating machines to conduct menial tasks, services such as troubleshooting and providing service to the customers are handled on a vast scale by 'Automation.'

Automation is the use of technology in creating a human-like service by using robots physically or virtually for helping in conducting various processes or working in a structured atmosphere. We could use automation to conduct repetitive tasks until we have achieved a satisfactory state, for looping mechanisms, and to assist humans in menial tasks.

Automation can cross charts as it reduces the expenses of hiring staff in bulk. It has a broad approach as we can implement it in many fields in its unique ways.

2. CONVERSATIONAL BOTS

Conversational bots are little programs that can execute in a predefined way when triggered by a user. Chatbots are the promising technology that makes a significant place in e-commerce as it increases the website's engagement.

Few of the traditional problems while browsing or shopping online include

1. Difficult to access or find websites.

2. Not being able to find solutions at ease.

3. Web page designs are not user friendly.

In such situations, chatbots emerge as the best hope to provide answers as per the user's request since people would prefer getting the details without having to wait on a call to get connected to a service provider.

The advantage of chatbots is that we can implement it on websites and over the most frequently used applications like WhatsApp, Facebook, and Twitter.

Chatbots function similar to customer service automated response, which conducts responses based on the input of numeric values associated with the choices. Most of the chatbots start with the greeting and asking what the uses would like to find out. On the backhand of the chatbot, it looks for keywords in the user's response and sends responses based on those keywords. Few basic chatbots also function in a natural, predefined flow, which has responses linked as per the choices received at the input.

Automating responses can nearly solve 80% of the problems if all the FAQ's are stored, and they update the system with quick responses. When encountering a particular issue that the machine does not have a pre-fed response, chatbots have a provision for connecting the conversation to a human. Hence, a skilled employee who practices troubleshooting handles the problem.

A modern automation system benefits chatbots on a large scale. Documenting the unique problems faced by the users makes the chatbots efficient in its process. It also eradicates the need for human assistance for the same issue in the future.

Here is an example of a menu-driven chatbot that works on the application WhatsApp. This prototype lets users get the latest updates from the store, register a complaint, or find contact details.
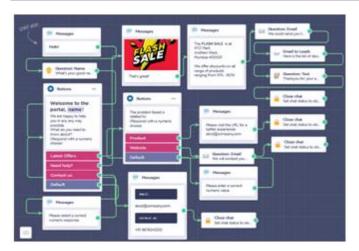
Fig.1 : Schematic flow of backhand function in chatbots

The flow of the chatbot starts when a message triggers it and asks the user for their name. It stores the name in a memory location (@name) and personalizes the further messages by using the value from the @name variable.

The chatbot accepts inputs in numerical values as an input to a menu of options that the user wants to access. On getting an inappropriate response from a user that does not link to a command, the system provides a default response to the user to re-attempt. It loops the conversation until it receives an appropriate response. The flow of the conversation is easily personalized and goes on until the system reaches the dead-end, i.e., close chat command. When the problems are not in the options provided, the chatbot allows the user to enter their email, which alerts the human service provider to connect with the end-users

Using conversational bots gives any business an edge by making the services available to the users at ease. The collaboration of services over user-friendly apps makes it easier for consumers to rely on providers for easy access.

Like conversational bots, Facebook also provides the functionality of having an automated chat provision for pages on the platform, which helps the users to connect with the companies without having to visit their particular websites. It also steps up the advantage by providing users with 'click on options' than having to respond with numbers. The choices in the chatbox reduce the confusion and widen the accessibility of this provision of smart technology.

Leading companies such as Spotify, Intel, Microsoft, Book My Show, Pizza Hut, and many more are already using this benefit to increase engagement and to automate and make users experience quick and easy.

3. TRANSACTIONAL BOTS

Transactional bots function over the structured data present by the system. It does not hold the functions or needs the requirements the same as a conversational bot. It carries out simple functions by using limited operations. Like a human operator, Transactional bots enquire about

the information such as identity, account number, and option to report the theft or any such malicious activities.

Transactional bots often follow a predefined order in which it responds. As a result, Transactional bots act as an answering machine.

With the advancement of artificial intelligence and machine learning, the transactional bots hold the ability to respond with data once the verification of the identity is successful. In other words, once the bot authenticates the user, it knows about their previous transactional history, balance, and limit of withdrawal. The well-equipped security practice makes the bots reliable and eliminates the risk of fraud taking place.

Businesses use the transactional bots for moving data from one place to another. As transactional bots equip high security, the risk of manipulation of data reduces.

4. BOTS IN MACHINE LEARNING

Machine learning is the ability for the bots to understand and perform according to new data provided. Recent development into knowledge bots has made understanding inputs and performing based on instructions easier.

Knowledge bots like Siri, Google Assistant, and Alexa have pushed the boundaries and made the use of bots global. As a result of home automation, GPS systems, and assistant in every mobile device use knowledge bots.

Like a website records cookies, knowledge bots track the user activity and responses to understand the needs. It then recommends the services to the user. The bots help the user in fetching data from a widespread internet at ease.

This request-response technology works with the help of cloud services and built-in API. The programs of such bot work on 'If this then that' technology. This technology helps the bot notice the trigger (if this) and to perform the predetermined task (then that).

With the boon of text-to-speech, the user is comfortable in understanding the chatbot functionality.

For example, when a personal assistant is asking for your name, it accesses the name trigger, which is predefined and saves the input by the user into the database. As a result, fetching and storing new data uses memory in the database.

Setting reminders, accessing data over the web, and opening applications are few of the basic tasks which are done by a mobile assistant. This automation is possible as access to applications is provided, and the assistant has the permission to add, read, and modify data.

5. BOTS IN INDUSTRY

Industries have tasks which are compliance-needy, error-prone, or repetitive. Eliminating dysfunctions in such areas can be possible by using bots. Industries use RPA, which stands for Robotic Process Automation.RPA functions when an entity has to manage and respond to

over 500,000 customers. As a result, tasks such as performing repetitive functions, human-computer interactions, multitasking among applications, and flagging exceptions are taken over by the RPA.

RPA software robots are always active in the background, which gives the companies an advantage never to lose data. They consider security as the highest priority while connecting with API, browsing through emails, and logging into applications.

This technology reduces the time consumption to determine product availability, apply search filters, and create databases based on demand and supply. It is the most promising technology which is undergoing universal acceptance.

6. CONCLUSIONS

Automation can perform tasks without needing human assistance if programmed efficiently, but it does not irradicate the need for humans completely. The bots manage nearly 80% of the services needed by the end-user. But, there always exists a possibility of the chatbots breaking down.

With the advancement in data, the application can always fall short-handed to adapt with the latest services. As observed, due to predefined inputs stored in the automation process, the application can loop with a response that isn't accurate. The utilization of automation is maximum when the troubleshooting can be smoothly shifted to human assistance if a problem is faced while conversing with a chatbot.

There are plenty of chatbots in the world, but not all of them are reliable with data. While few chatbots implement security measures, bad bots steal data, impersonate, and perform scraping. Functions such as spamming are frequently used by the bad bots to disturb the normal functioning of the device. Hence, it becomes our utmost duty to ensure adapting over reliable and safe bots.

Automation can be put into implementation over the day to day activities and majorly in switching the homes into smart homes. Automation benefits the owners to monitor and manage functions remotely and to double-check for assurance.

Automation is the future of technology as conversational and knowledgeable bots are going to assist human life to a great extent.

REFERENCES

[1] Automation
https://en.wikipedia.org/wiki/Automation

[2] Landbot App
https://app.landbot.io

[3] What Is Automation?
https://www.isa.org/about-isa/what-is-automation/

[4] The World of Chatbots: Customer Service, Business Automation
https://www.bigcommerce.com/blog/chatbots/#what-is-a-chatbot

[5] 5 Most Used Bots in Various Industries Today
https://www.minit.io/blog/5-most-used-bots-in-various-industries- today

[6] Types of Bots: An Overview
http://botnerds.com/types-of-bots/

[7] Transaction or Knowledge Chatbot? Moving Beyond the Siri
https://dzone.com/articles

[8] Robotic Process Automation (RPA)
https://www.uipath.com/rpa/robotic-process-automation

BIOGRAPHIES

Kumkum Saxena is currently working as an Assistant Professor in Thadomal Shahani Engineering College (TSEC), Mumbai. She is also pursuing Ph.D (Technology) in the area of Information Systems. She has more than 18 years of teaching experience. Her research interests include Image Processing, Data Structures and Algorithms, Object Oriented Programming using C++& Java, Computer Networks, Operating Systems, Automata Theory, Cyber Security and Information Systems. She has published a number of technical papers in National and International Conferences.

Manav Bahl is a student in Thadomal Shahani Engineering College studying in the field of Information Technology. He has a keen interest in computer networks, cyber security and troubleshooting processes. He has published a paper on Cyber security. Manav is a Google Certified I.T Support Specialist which covers troubleshooting, customer service, networking, operating systems, system administration and security.