Application Of Chatbot Technology In LIS

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Abstract— **This paper explains about the Application of ChatBot Technology in Library and Library Resources. ChatBots are used in applications such as Ecommerce, customer services, call centers and internet gaming. Chatbots are used as conversation agents with a specialized purpose. Information regarding library includes holdings, working hours, rules and regulations of the library, membership information, Facilities/services offered by the library. This service may through simple chat, extended chat or through video conferencing, Email, FAQs, Guided tours, Ask a Librarian, Web Forms and ChatBots. These digital references help the users to meet online.**

Index Terms— **Chat Bots, ICT, Webforms, Digital Libraries, Automation.**

I. INTRODUCTION

An application of ICT is playing an important role in all walks of human life. Automation, Internet, WWW, Applications of Artificial Intelligence are some of them. In order to improve marketing many companies are trying to adopt new technologies like e-commerce. Creation of websites is one of the tools to give information about the company and their products. In order to make these websites more users friendly the companies are using Messaging Apps, web forms, FAQs and Chatbots. Since Messaging apps did only messaging and FAQs were prewritten and predicted question answer sets the techno companies tried to implement artificial intelligence in making the interactive apps. Chatbots are the result of it.Chatbot is a rudimentary form of artificial intelligence software that can converse with humans to answer questions. Combining pre set scripts and deep learning neural networks, bots can predict an accurate response to posed questions in a way that skips phases of conversation to mimic regular chat (Cragg, 2016). Chatterbots are virtual characters capable of engaging a human counterpart in a meaningful conversation, which are treated as interfaces to help systems.

II. HISTORY AND DEVELOPMENT

The term "chatterbot" was originally coined by Michael Mauldin in 1994 to desribe the conversational programs.

- Eliza was the first Chatterbot written by Joseph Weiznbaum in 1966. It was programmed to act as a Rogerian Therapist, eliza operated by recognizing keywords or phrases in the input
- PARRY (www.chatbots.org/chatbot/parry) was another Chatterbot developed in 1972 by psychiatrist Kenneth Colby. It was originated as a research tool designated to simulate the thinking of a paranoid individual.
- Jabberwaky (www.jabberwacky.com)- It was written by Rollo Carpenter in 1988. It is an attempt to create a program that learns the program, retains all conversations and finds appropriate responses

by matching pattern in their context.

- A.L.I.C.E-Artificial Linguistic Internet Computer. It was written in 1995 by Dr. Richard Wallace.
- UltraHal (http://zabaware.com) Robert Medekza developed this in 1997. the program is able to learn by statistically analyzing past conversations to determine the most appropriate response. It supports number of speech and graphic engines.
- Suzette/Rosette-Written by Bruce Wilox using his own scripting language Chatscript in 2010
- Cypher-First Persian AIML bot
- iGod
- Kyle-Employes contextual learning algorithms
- Prelude- A self learning bot
- Bot Shop by Kik on April 5 2016
- Bot store for Facebook messenger

III. DEFINITION

According to IGI Global "Chatterbots are artificial entities capable of conversational interaction. They are also conversational agents, robots of conversation and alsu Chatbot.

According to Matt,"A chatbot is a service, powered by artificial intelligence, that you interact with a via a chat interface. The service could in any major chat product like facebook Messenger, Slack etc

Webopedia definition is sort for chat robot, a computer program that simulates human conversation or chat through artificial intelligence (What is Chatbot)

According to Osswald, A Chatbots are enhancement of web forms-A user asks question in natural language which will be answered by a chatbot. The Chatbot might open webpages withrelevant to answer the question or transfer questions to a live chat a staff member. A parsing tool is neede to analyze and translate questions which will then be matched against a knowledge database of frequently asked questions and answers given.Answers are referencing to the appropriate facts of the knowledge database based on the facts. They are well formed sentences in natural languages created by the chatboot software

IV. HOW TO BUILD CHATBOTS

ChatBot is integrated into DIALOG system. It is basically user interface which can be plugged into a number of data sources via AIPs so it can deliver information on demand.Is uses machine learning to pick up on conversational cadences, allowing it to effectively mimic human conversation and react to spoken or written prompts to deliver a service (Scott, 2016)

Example of an automated online assistant providing customer service on a web page.

According to Lauren Kunze there are 2 main categories of Chatbots

- Utility chatbots
- Content driven bots.

There are Two types of ChatBots

- Chatbots that functions based on Rules: this type of bot can respond to very specific commands. If wrong or unrelated thing is said it doesnot understand. This bot is smart as it is programmed to be.
- Chatbots that function using Machine Learning: It is based on Artificial Intelligence. It understands language not just command. It has the capacity to converse with the people.

V. SOURCES

- Pandorabots is an open-source chat bot hosting company
- Github: An open source web service

A. Some chatbot engines available are

- Chatscript
- ProgramO

B. Chatbots can be built on

- Stand Alone Applications: Chatbot runs on single computer. Simple to install and use. They have attractive graphical interface. They have facility of A text to Speech system But the disadvantage is there is limited degree of configuration. The applications are not free.
- Web Based chatbots - run on a remote server and are reached to the public through a web page. It is basically a blank web page with a form embedded in it that is the sole interface between the user and bot. these bots have control over behaviour and pesonality, they can be hosted for free. But web based bots are not as easy to set up as a standalone chatbot application.it requires minimal experience/skills with HTML, CSS, Javascript and Artificial intelligence markup language.

VI. USES

ChatBots are used in applications such as Ecommerce, customer services, call centers and internet gaming. Chatbots are used as conversation agents with a specialized purpose.

VII. ADVANTAGES

As Shared by Osswald Achim(2006)
- Chatbots are available 24/7
- Easy and cheap accessibility from the distance
- Natural language interface to FAQs
- Anonymity to the users (Osswald, 2006)

VIII. DISADVANTAGES

They cannot replace personal interaction within the reference interview

IX. SOME SCREENSHOTS OF CHATBOTS

X. CHATBOTS IN LIBRARY AND INFORMATION SCIENCE

Library professionals are integrating Information and communication technology in all library aspects in order to provide qualitative and quantitative services in speedy way. Library automation, Creation of Digital libraries, Automated Information retrieval by adopting Artificial Intelligence, expert system, Application of Internet, WWW, Web2 technology, Hosting of Websites are some examples. Digital reference is one aspect where information related to libraries is delivered. Information regarding library includes holdings, working hours, rules and regulations of the library, membership information, Facilities/services offered by the library. This service may through simple chat, extended chat or through video conferencing, Email, FAQs, Guided tours, Ask a Librarian, Web Forms and ChatBots. These digital references help the users to meet online. E mails services are usually meant for reference services. It has limitation sometimes mails may be missed or not answered.FAQs are related to questions asked by the users of a specific library. Webforms are offered in which users are invited to key their questions structuring them and asking for additional information which likely wouldnot have been given when sending the question by E-mail. E-mails and Webforms are good for questions on facts.

XI. Limitations Of These Tools

- E-mail and Web based forms offer very less information compared to interview
- Information may not be adequate to answer the underlying question.
- There is no interaction between librarian and users to focus on the problem

So libraries have started integrating chats on their websites. Chatbots are the latest additions to it.

A. Some of the Chat BOTS Developed in Library Info Field are

- Lillian (2006) :Lillian was in development at OCLC. Lillian had been used to create other chatbots (McNeal)
- Emma the Catbot (2009–2012) : Emma was an AIML-based program in use at the Mentor Public Library, in Mentor, Ohio, from 2009 until 2012. . Emma answered general questions and passed searches to the library catalog and to other databases and websites. Around 2011, Emma became infoTabby and remains active on the Web. One can chat with her online and download a copy of her AIML files (McNeal)
- Pixel (2010) http://pixel.unl.edu. Pixel is an AIML chatbot writte in 2010 at the university of Nebraska-Lincoln libraries, It answers general questions about the library and helps users find information on the library website. (McNeal)
- Marvin: Marvin is designed to stimulate intelligent conversation with students of Information Sciences at the faculty of Humanities and Social sciences in Zegrab. It is capable of providing basic feedback via textual methods (Preradovic)
- Stella-German ChatBot developed at the Bibliothekssystem University Hamburg in 2004 It is mainly for research strategies. There are about 3000 rules. Each rule for a specific topic. Variations of questions phrased in regular exprssions in Perl, Answers with mood, text URLs.Popular topics are finding a book, borrowing, Hours and E-resources. (Osswald, 2006)
- askademicus developed at the Technische university Dortmund to assist users on thew library's website.
- INA developed at Bucherhallen hamburg website in 2006.
- Kornelia, a virtual assistant at the Kornhaus Bibliotheken in Bern.
- The Program O Chatbot is a chat robot that gives natural language responses to user input. At its core, Program O is an open source AIML (Artificial Intelligence Markup Language) engine written with MySQL in PHP. Users can converse with the chatbot directly on the website or programmatically via REST calls. ProgramO is a chatbot Engine.It was developed by Elizabeth Perreau. It is available at GitHub web service. And sourceforge web service

XII. Conclusion

Virtual reference tools are gaining importance in the LIS field. Chat bots are one of them. Chatbot integration within the library website is easy and cost effective for libraries to expand their information services. Chatbots are coversation agents ProgramO is a open source chatboat which can be included in the library website more interactive.

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