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A SURVEY ON WEB-BASED INTELLIGENT CHAT BOT

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Abstract: Bots are the most predominant and eminent players in all sectors. Especially for the business development sector it is the most needed and focused component. Thus, intended to train and build up bots for the future needs. Also these bots are built to give up security. This system involves in gathering of data's which is required for the application. Then processing of data for a particular domain is focused. This project purely depends on the psychology of users who raise up their queries and then the appropriate answers will be given to the users. If the question is too hard for the bot to find and resolve then it will be passed to the particular team of the domain. Offering an overview of the entire process for a perfect user experience to the client's is the accomplishment of success in business. The entire system will be very useful for the business sectors to enhance their productivity to the next level and it completely relies onto the client's needs so, it is the most focused domain for the growth of a company.

Index Terms **- Chatbot, Web-based Voice chatbot, Optical Character Recognition, and conversational systems.**

I. INTRODUCTION

Freddy is a chatbot. It's the freshworks AI engine that powers the bots that isthe freddy answers and custom flows. Freddy Answers understands intent. It powers all the capabilities in the chatbots like analysing detecting intent, suggesting example questions, email, detecting gibberish content and chat convos. You can train Freddy Answers to answer any common question a customer asks at the start of a new conversation. But it doesn't stop with deflection. Freddy Answers can follow up with an intent-based Custom Flow closing the conversation when successful - so it never reaches your team. It has much more intense power in engaging business solution[1,2].

Chatbots are software application used to conduct an on-linechat conversation via text or text-to-speech, in lieu of providing direct contact with a live human agent Designed to convincingly simulate the way a human would behave as a conversational partner, chatbot systems typically require continuous tuning and testing, and many in production remain unable to adequately converse or pass the industry standard Turing test. The term "ChatterBot" was originally coined by Michael Mauldin (creator of the first Verbot) in 1994 to describe these conversational programs.

Chatbots are used in dialog systems for various purposes including customer service, request routing, or information gathering. While some chatbot app6lications use extensive word-classification processes, natural language processors, and sophisticated AI, others simply scan for general keywords and generate responses using common phrases obtained from an associated library or database. Most chatbots are accessed on-line via website popups or through virtual assistants. They can be classified into usage categories that include: commerce (ecommerce viachat), education, entertainment, finance, and productivity. Chatbots are increasingly present in businesses and often are used to automate tasks that do not require skill-based talents. With customer service taking place via messaging apps as well as phone calls, there are growing numbers of use-cases where chatbot deployment gives organizations a clear return on investment. Call center workers may be particularly at risk from AI-driven chatbots[3-5].

Chatbots are the computer programs built to simulate human conversations whether that is on a website, a messaging app or a virtual assistant. With today's customers expecting immediacy and personalization in their interactions with brands, the addition of chatbots as a communication channel has become critical to business growth.

Chatbot domain presents a series of constraints and complexity in terms of applying information processes on the sentimental analysis of clients. Described solution is presenting the usage of textual communication application and this works in the online experience in the prescribed working hours and leaves up a support article for further movesfor the users in the front end.

BOTS

A bot is a short form of "robot" and also called an internet bot -- is a computer program that operates as an agent for a user or other program, or to simulate a human activity. Bots are normally used to automate certain tasks, meaning they can run without specific instructions from humans. An organization or individual can use a bot to replace a repetitive task that a human would otherwise have to perform. Bots are also much faster at these tasks than humans. Normally, bots will operate over a network. Bots that can communicate with one another will use internet-based services to do so -- such as instant messaging, interfaces like

Twitterbots or through Internet Relay Chat (IRC). In general, more than half of internet traffic is bots that interact with web pages, talk with users, scan for content and perform other tasks. Bots are made from sets of algorithms which aid them in their designated tasks. Tasks bots can normally handle include conversing with a human -- which attempts to mimic human behaviours or gathering content from other websites. There are plenty of different types of bots designed differently to accomplish a wide variety of tasks[6].

TYPES OF BOTS

Types of bots. There are numerous types of bots, all with unique goals and tasks. Some common bots include:

A chatbot: which is a program that can simulate talk with a human being. One of the first and most famous chatbots (prior to the web) was Eliza, a program that pretended to be a psychotherapist and answered questions with other questions.

- Social bots: which are bots that operate on social media platforms
- A shopbot: which is a program that shops around the web on your behalf and locates the best price for a product you're looking for. There are also bots such as OpenSesame that observe a user's patterns in navigating a web site and customize the site for that user.
- A knowbot: which is a program that collects knowledge for a user by automatically visiting Internet sites to retrieve information that meets certain specified criteria.
- Spiders or crawlers (also known as a web crawler): which are used to access web sites and gather their content for the indexes in search engines.
- Web scraping crawlers: which are similar to crawlers but are used for data harvesting and extracting relevant content.
- Monitoring bots: which can be used to monitor the health of a website or system.
- Transactional bots: which can be used to complete transactions on behalf of a human.
- Malicious bots are bots used to automate actions considered tobe cybercrimes.

Bots may also be classified as good bots and bad bots, or in other words, bots that will not harm the system and bots that pose threats and can harm the system.

USAGE OF BOT

- Faster than humans at repetitive tasks;
- Time saved for customers and clients;
- Available with clear answers
- Organizations can reach large numbers of people via messenger apps;
- Bots are customizable.
- Improved user experience.

CHATBOT

The term chatbot consists of two other terms - chat and bot. The meaning can be better understood by examining the two components separately.

The Oxford Dictionary defines chat as “an informal conversation” and more specifically as “the online exchange of messages in real time with one or more simultaneous users of a computer network”. As apparent in this definition,conversations play a central role in chat and therefore chatbots. Other noteworthy aspects of this definition are the inherent informal format of a chat, and the traits of being online and real time. Informality does not have to be seen as a strict requirement; However a chat message and, for example, a classical letter have different degrees of formality. Being online and thereby not bound to a specific geographic location, device or other physicality can be seen as criticalfoundation for determining potential types of systems suitable for such media. The aspect of limiting communication to real time implies restrictions on possible interactions and sets a baseline for the expected user experience. This also excludes the usage of certain technologies which do not support the desired responsiveness[7].

A conversation is defined as “a talk, especially an informal one, between two or more people, in which news and ideas are exchanged”. Fundamental to this definition is that there are always at least two parties involved in communication and that information is exchanged. Keeping that in mind, the kind of systems involved in this should always receive and provide information; chatbots cannot work with solely unidirectional interaction**.** Bot is defined as being “(chiefly in science fiction) a robot” with the specific characteristics of representing “an autonomous program on a network (especially the Internet) which can interact with systems or users, especially onedesigned to behave like a player in some video games”.

Foremost this provides the information that bots, including chatbots, are programs. The creation of a chatbot implies the creation of an artifact in the form of a computer program. Furthermore the aspect of autonomy and the communication over a network can be connected with the previous described trait of a chat to be online.

The program is given autonomy by not being bound to any specific device. Building on this allows for different solutions than a scenario where the user is in full control of a program’s behaviour. Lastly there is a hint in this definition pointing out that a bot can often be seen as a player in a game. This trend towards game-like mechanisms and the previous mentioned informality suggests the utilization of playful interactions.

Concluding from the combination of these definitions, a chatbot can be defined as an autonomous computer program that interacts with users or systems online and in real time in the form of, often play-like and informal, conversations.

WIDGET

A widget is a software program, operating system GUI, or web page, whichenables additional features. A widget is designed to improve the user's overall experience. A widget or gadget can add a wide variety of functionality, including icons, menus, and buttons. A widget can also include new add-ons thatgive users the latest news, sports scores, stocks, weather information, traffic reports, calendar, mini-games, quotes, and more. Widgets and gadgets are often made available through the website that supports them. Below are some direct links to web pages with gadgets and widgets

II. LITERATURE SURVEY

This chapter presents a detailed Literature Survey of all the existing workcarried so far by various authors along with the pros and cons of each.

AN INTELLIGENT WEB-BASED VOICE CHAT BOT

This paper presents the design and development of an intelligent voice recognition chat bot. The paper presents a technology demonstrator to verify a proposed framework required to support such a bot (a web service). While a black box approach is used, by controlling the communication structure, to and from the web-service, the web-service allows all types of clients to communicate to the server from any platform. The service provided is accessible through a generated interface which allows for seamless XML processing; whereby the extensibility improves the lifespan of such a service. By introducing an artificial brain, the web-based bot generates customized user responses, aligned to the desired character. Questions asked to the bot, which is not understood is further processed using a third-party expert system (an online intelligent research assistant), and the response is archived, improving the artificial brain capabilities for future generation of responses.

Merits:

- Chatbots eliminate the requirement of any manpower during online interaction and are hence seen as a big advantage by companies receiving multiple queries at once.
- 24-7 availability – Unlike humans, chatbots once installed can attend queries at any time of the day.

COLLEGE INFORMATION CHAT BOT SYSTEM

User interfaces for software applications can come in a variety of formats, ranging from command-line, graphical, web application, and even voice. While the most popular user interfaces include graphical and web-based applications, occasionally the need arises for an alternative interface. Whether due to multi- threaded complexity, concurrent connectivity, or details surrounding execution of the service, a chat bot based interface may suit the need.

Chat bots typically provide a text-based user interface, allowing the userto type commands and receive text as well as text to speech response. Chat bots are usually stateful services, remembering previous commands (and perhaps even conversation) in order to provide functionality. When chat bot technology is integrated with popular web services it can be utilized securely by an even larger audience. Chat bot can run on local computers and phones, though most of the time it is accessed through the internet. Chat bot is typically perceived as engaging software entity which humans can talk to. It can be interesting, inspiring and intriguing. It appears everywhere, from old ancient HTML pages to modern advanced social networking. Websites, and from standard computers to fashionable smart mobile devices. Chat bots talk in almost every major language. Their language (Natural Language Processing, NLP) skills vary from extremely poor to very clever intelligent, helpful and funny. The same counts for their graphic design, sometimes it feels like a cartoonish character drawn by a child, and on the other hand there are photo-realistic 3D animated characters available, which are hard to distinguish from humans. And they are all referred to as “chat bots”.[9-11]

Merits:

- Visually impaired students can also use their regular methods of giving voice commands instead of typing, to extract information from your website or check their application status.
- As such, using online chatbots helps you attract and engage a much broader spectrum of applicants.

COLLEGE ENQUIRY CHAT BOT

Chat bots typically provide a text-based user interface, allowing the user to type commands and receive text as well as text to speech response. Chat bots are usually stateful services, remembering previous commands in order to provide functionality. When chat bot technology is integrated with popular web services it can be utilized securely by an even larger audience. The college enquiry chat bot will be built using artificial algorithms that analyses user’s queries and understand user message. This System will be a web application which provides answer to the query of the student very effectively. Students justhave to put their query to the bot which is used for chatting. The system will usethe artificial intelligence algorithms to give appropriate answers to the user. If the answer is found invalid, then some system to declare the answer as invalid can be incorporated. These invalid answers can be deleted or modified by the admin of the system. The student will not have to go to the college for enquiring something. Student can use the chat bot to get the answers to their queries. Students can use this web based system for making enquiries at any point of time. This system may help students to stay updated with the college activities.

Merits:

- Students can get instant answers to their queries. Using a chatbot facilitates better communication between the students and teachers. It creates an interactive environment just like that of a classroom.
- Moreover, students can also know about the admission details in different colleges and get themselves enrolled by submitting online forms.

SMART ANSWERING CHATBOT BASED ON OCR AND OVERGENERATING

With rapid development of information and communication technology, people are very diverse in education, learning style, and knowledgeimprovement methods. This paper presents an approach of converting documents into knowledge of Chatbot system that enables users to make more benefits of it by asking and answering questions through the use of electronic documents integrated with simulate system. It is an integrated system for enrich contents of documents from popular format such as Portable Document Format (PDF) and digital photos. The workflow of this system is started from extracts texts using Optical Character Recognition (OCR) from files, and then generates questions via over generating Transformations and Ranking algorithm, and finally let Chatbot response to the user’s question when it is matched with the String pattern[12-15].

Merits:

- High accuracy can be obtained by using sharp, clear scans of high-quality originals, but it decreases as the quality of the original declines.

TOWARD THE IMPLEMENTATION OF A TOPIC SPECIFICDIALOGUE

In this work, we explain the design of a chat robot that is specifically tailored for providing FAQ Bot system for university students and with the objective of an undergraduate advisor in student information desk. The chat robot accepts natural language input from users, navigates through the Information Repository and responds with student information in natural language. In this paper, we model the Information Repository by a connected graph where the nodes contain information and links interrelates the information nodes. The design semantics includes AIML (Artificial Intelligence Mark up Language) specification language for authoring the information repository such that chat robot design separates the information repository from the natural language interface component. Correspondingly, in the experiment, we constructed three experimental systems (a pure dialog systems associated with natural language knowledge based entries, a domain knowledge systems engineered with information content and a hybrid system, combining dialog and domain knowledge). Consequently, the information repository can easily be modified and focused on particular topic without recreating the code design. Experimental parameters and outcome suggest that topic specific dialogue coupled with conversational knowledge yield the maximum dialogue session than the general conversational dialogue[16].

FARM CHAT

A Conversational Agent to Answer Farmer Queries The researchers developed a knowledge base for potato farming using the KCC dataset and information collected from formative interviews with smallholder farmers and agri-experts. For each of the identified topics, they asked the two agri-experts (who participated in the Formative Study) to provide examples of typical farmer questions, the follow-up questions that they would ask in order to understand the problem, and the final advice they would provide. All such conversations was added to the IBM Watson Conversation dialogue flow, and the informational advice was included in the Farm Chat knowledge base. In the current version, the knowledge base is a SQL database consisting of four tables, one for each of the topics they identified above.

Merits:

- The Audio-only Farm Chat app receives the bot's response, it removes the waiting icon, and speaks out the response.
- The Audio + Text Farm Chat user interface closely resembles a typical text- messaging interface, wherein the user input and botresponse are presented in message bubbles.

AGRONOMO BOT

A smart answering Chatbot applied to agricultural sensor networks: For agricultural purposes, it is important that the data about field conditions, such asair and soil temperature, air relative humidity, soil moisture, rainfall, wind speed and other relevant variables, be rapid and easily available for use by farm management systems, by specialists, or the farmer itself in decision-making processes. AgronomoBot was developed focused on the search and display of data acquired from a Wireless Sensor Network deployed on a vineyard. It is based on Telegram Bot API and is able to access information collected by echo field sensors, bringing it back to a user through interaction over the Telegram application. The IBM Watson cognition services platform was alsoused for improving the user experience by enabling the use of natural language during the conversation experience, providing intention detection. Further developments are planned for AgronomoBot, such as the expansion to other messaging platforms, the implementation of speech communication capacity, image classification and continuous data analysis. It is hoped that with analytical capacity over the mass of available data, it becomes possible to work towards the prevention of harmful situations to agricultural productions, early detection of diseases in crops, energy and water waste reduction, and advanced management capabilities for the farmer.It was possible to achieve the objectives, presenting a satisfactory solution for the search and display of data on a WSN applied to wine production, based on the use of natural language that combines the functionalities of the electronic message service Telegram and the power of the cognitive services platform Watson from IBM[17].

Merits:

They can operate with closer tolerances (so, every round is at full field capacity), They offer fewer errors and at higher speeds, and the higher quality products can be sensed by the machines accurately.

AGRICULTURE CHATBOT APPLICATION USING PYTHON

A Chatbot is an assistance that individuals communicate with by means of a talk interface. You can pose inquiries utilizing by composing similarly you would ask an individual. The chatbot will as a rule react in a conversational style, and it might do activities because of your discussion (for model, request something for you). It regularly runs inside a mainstream informing application, for example, Facebook Errand person, Slack, or SMS. It addresses your inquiry, as opposed to guiding you to a site. With online life entrance and web network ready to increment joined by propels in common language handling and man- made reasoning, chatbots are relied upon to overwhelm the market. For a designer it is critical to comprehend what the chatbot will offer and what classification the chatbot falls into. This would help pick the calculations or stages and instruments to use to fabricate the bot. It additionally helps the end- clients comprehend what's in store. Here we talk about the sorts of chatbots, the apparatuses and calculations that can be utilized for various kinds of chatbots and give a general engineering that can be followed while building bots. We likewise address the territories where in chatbots are missing and recognize the exploration regions consequently requiring consideration.

This system overcomes the above-mentioned drawbacks by providing a user interface, where farmers or any other users can interact effectively to get the desired responses with a smaller number of steps. This system "Talk Bot" isa chatbot, which is a virtual assistant that enable users to get their queries clarified in a user-friendly manner. The input is obtained from the user, the textual query will undergo preprocessing steps in order to find the category of the query it belongs to, and provide the corresponding response.

Farmers are Suffering from the infection caused to the plants or fields, Due to this the farmers and getting less yield and getting huge loss in profit. By this Agriculture Chatbot the farmers will be happy and they will get more yield because they can ask the questions to agribot and they can clear their doubtsand Spray the pesticides in current time and forming also done at

correct time due to this there is no loss for agriculture. To help the farmers and to solve the queries of the farmers we are introducing a chatbot. Farmers can communicate with the chatbot which makes the computers closer to human-level understanding. The Chabot collects the keywords and will start the conversation by asking queries to the users and provide the suggesting plans.[18]

A Chatbot is an Artificial Intelligence (AI) software that conducts a conversation with users via text-based method without any human intervention at the server side. In this project we implemented only limited features like text-based chatting which is designed only for the farmers who are doing Agriculture Farming.

Merits:

- By this Agriculture chatbot So many farmers will be in helpful and they can save money and time of travelling to know the exact pesticide to spray for the particular virus infected by the plants in the field.
- Chatbots are keen associates with man-made consciousness are drastically developing associations.

SURVEY ON CHATBOT DESIGN TECHNIQUES IN SPEECHCONVERSATION SYSTEMS

Sameera A. Abdul kadhar (1987) proposed a survey on chatbot techniques in speech conversations systems and focused on the examination of factors which influence the chatbot design and showed that there were commonalities and differences in the speech analysis and the conclusion is that, the speech is been divided as voice recognition, text processing, response and action taking and this enhanced new chatbots with added techniques and improvised their functions [19].

Research work has focused on developing recognition rates of the human voice and the technology is now approaching viability for speech based human computer interaction.

Speech Interaction splits into more than one area including: speech recognition, speech passing, natural language processing, keyword identification and others. It is also mentioned that there will be no use of mouse, keyboard if speech recognition is widely accepted as the future interaction. In order to deal with speech recognition NLTK (National LanguageToolkit) plays an important role. Likewise, many techniques have been listed out to design chatbots in the area of speech conversation systems.

Merits:

- Chatbots can assist in human computer interaction and they have the ability to examine and influence the behavior of the user by asking questions and responding to the user's questions.
- Conversation techniques between a human and a computer can be either chatting by typing text or speech dialogue using the voice.

A SURVEY ON CHATBOT CONVERSATIONAL SYSTEMS

A Chatbot is a human like conversational character. It is computer program which develops a conversation through auditory or textual methods. Its conversation and all the human like skills are due to the Artificial Intelligence. Previous Chatbots use simple keywords and pattern matching methods. For developing number of heuristic rules, language expert knowledge is necessary, these rules maintain the quality of the systems. The paper also mentions about the methods, using dialogue acts and POS- tagged tokens, long term memory and knowledge extractor, experimental results and discussions[20].

Merits:

- These chatbots are very helpful indifferent applications, such as keeping elderly people company and improving the understanding of the learners of the second language.
- This type of chatbot is utilized in devices in order to provide convenienceto the users.

III. CONCLUSION

This work introduced the fundamentals of chatbots and it gives an overview about ideas, products and platforms of all website. The current interest in chatbots, its influence in technology, its advantages in the business firm for a smooth flow between the clients has been discussed here in detail. Different aspects of the implementation of a chatbot and its working with conversational interfaces have been presented through the creation of an exemplary chatbot, which included interaction, the user experience design and a general architecture of chatbots.

IV. FUTURE WORK

Building up a single widget such that it's used for the working of it in various webpages in a website is to be trained. So that the usage of this bot is very useful. Such bot works brilliant and its aims for a cost efficient business firms. This leads to a low cost throughout its usage and also this training leads to a huge training of topics to a bot. This is the idealogy behind. The performance and accuracy of the single base bot leads to a higher level such that it would provide a no lack service between the user and the bot. Voice based bot are eventually helpful than a chat based bot as it improvises the performance by consuming less memory.

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