PROJECT IDEA

My Project Idea is a Chatbot that can be used as a FAQ for a shopping website, that allows the users to ask questions and check on status of orders or suggest products based on specifications or tell new or upcoming products that may be released and help guide users to these pages. The Chatbot would have voice recognition commands such as “I would like to check my order” in which the bot would respond with information, asking for further specification if necessary. The Chatbot would be able to do multiple things like checking orders, recommend products based on suggestions given by an algorithm such as if you like items marked with a tag such as ‘gaming’ it could recommend other items

The Motivation stems from a personal interest in chatbots and how they work, as well as the broad amount of uses they can have stemming from assistants to customer support. There also seems to be a large opportunity for such chatbot as websites such as Target and EB-Games don’t have such technology. This would help users navigate such websites, get quick access to their orders, and would make use of the websites more efficient which could promote people using it.

The Project itself is a Chatbot for a shopping website such as Target and EB-Games. The Chatbot would include a FAQ section where users can ask the bot how to do various things such as check on their order’s status or get recommended products under specifications such as recent releases or product type or information. The bot would also be able to act as customer support or be able to contact customer support if the issue is beyond it. The Bot would be a transactional chatbot , a chatbot with specific options already laid out as most issues could hopefully be anticipated and if not, they can be directed to call customer services, it would also make the recommendation process easier as the specifications would already be laid out and can be given tags already imbedded in the website such as ‘kitchenware’ then ‘blender’ or ‘PlayStation’ then ‘games’. It also removes the errors which could occur when the user’s message is being interpreted or responded to, such as the bot not recognising what the user is saying, It would also make any voice activation easier as it would have to learn an almost unlimited vocabulary or be subject to errors whereas it would have to learn fewer words and can focus more on various pronunciations of the words. Some issues the chatbot would have would be to make it easier to use than just using the websites menus. If poorly designed the bot could be more tedious at finding specific products, then if the user had used the website normally, this could be remedied by implementing a conversational chatbot mode which would allow the user to enter information instead of it being fixed options. This could allow people to search with more filters than what is available in the website normally such as searching for a specific game under a specific console without manually editing filters once its already searched. This could also work in other shopping websites and be more efficient than searching and filtering manually, and then scrolling through the multitudes of various items, when the chatbot could recommend the ‘best’ one, one with the best reviews or one with the most highest rating reviews to prevent a 5\* blender that has one review beating the 4.9\* blender with tens of 5\* reviews, reducing the chance of a possible false review having an effect on users shopping for that item. The bot should also be able to answer ‘Frequently asked Questions’ or Issues the user is experiencing. If an issue is selected, the bot will provide fixes to frequent issues, and if it’s unable to then the user can select ‘none of these issues’ and will be sent to customer service who should be able to help the user through the issue. The Chatbot will activate as soon as the user accesses the site and when it enters specific pages, this will allow the users to access it with ease and can help them get to where they want or need to go, the chatbot will also have a call section so sections like FAQ can be asked without visiting the website itself.

Chatbots are software that are generally comprised of 7 components, they are:

Natural Language Processing, the ability to turn text and speech into understandable data for the machine, this is further categorized by Tokenisation, splitting words into smaller parts based on meaning, Normalisation, checking words for typos and correcting them, Entity Recognition, looking for keywords to identify topics, and Semantic Analysis, inferring meaning of a sentence by understanding each word.

Natural Language Understanding, which is recognising patterns in human speech, further categorised by Dictionary, determining meaning of words, Parser, to determine if the syntax conforms to the rules of language, and Grammar Rules, to break down the input based on sentence structure and punctuation

Knowledge Base, A library of information that the chatbot relies on to fetch the data used to respond to users. It will differ depending on business needs. For the above project it would be info on products and prices.

Data Storage, Store conversations for testing and training purposes

Dialog Manager, the component responsible for the flow of conversation between users and chatbots. It keeps a record of interactions in order to decide how to respond

Natural Language Generation, the process of transforming machine-produced structured data in readable text. There are multiple steps, Content Determination, filtering data in the knowledge base to choose what to include, Data interpretation, understanding the pattern and answers in the knowledge base, Document planning, structuring the answer in a narrative manner, Sentence Aggregation, compiling expressions and word for each sentence, Grammaticalization, applying Grammar rules and Language Implementations, Inputting data into language templates to ensure a natural response.

Chatbots are generally based in the cloud, and are generally provided by services providers similar to internet service providers, an example of this is Moveworks, however they can be programmed in languages such as Python, NodeJS or Ruby, After programming the bot, you can use natural language processing services which are provided on the internet such as Facebooks Wit.ai or Google’s Api.ai, for example, Wit.ai allows you to turn what users say into actions, such as “What’s the temperature”, would be an action “temperature.get”, these services are free and can help build the chatbot much easier, the chatbot will also require a database to draw information from, such as the current temperature, times, tags, etc, In the case of the planned chatbot, it would need to be able to get Item names, Item Tags, Prices and other features that allow it to provide what the customer needs, any database solution works, such as MySQL or MongoDB, Finally chatbots are generally run through servers that are online 24/7 so that customers can get access to the data they need at any time with ease, services like AWS or Circleci allow you to buy/rent servers you can run your chatbot from,

The Skills required for the creation of this project would be database management to produce the knowledge base and update the database to keep it up to date and functioning, there are online tools such as Collect.chat, HubSpot, etc. Chatbots can be created using different programming languages, such as Python3 or NodeJS, it requires a large amount of skill in the chosen language but a simple chatbot with keywords could still be functional in a website though it might not answer all questions due to complexity of language and therefore wouldn’t be as effective in a work environment, however it wouldn’t take as much skill and effort to program, furthermore you would need a database that works with the natural language processor so that its able to grab the necessary data from the database and display the information to the user. The database would need to be a comprehensive list of all the necessary data, for example with a game, you need rating, price, name, descriptions for each item as well as for any other items, for furniture you would also need dimensions, colour, and other aspects a user should know when buying the products, this would be an extensive database of things that the store sells, as well as the stock of each product.

The success of the project will result in a functional chatbot usable in multiple environments such as other websites. The chatbot could be used in a range of websites from video game stores to clothing to general purpose, maybe filling the gap in an open market which could help one competing store get an advantage over its competitors.