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ADVANCED VOICE RECOGNITION BOT FOR INTERNET BANKING

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ABSTRACT: A banking bot project is built using Artificial Intelligence algorithms that analyze the user‘s queries and understand the user‘s message. The system is designed for banks to use where users can ask any bank related questions like loan, account, policy, etc which bank related queries . The system recognizes the bank customer’s query and understands what he wants to convey and simultaneously replies like video, audio and images. At present, there are chat applications for banks. The questions asked by the users can be in any format. There is no specific format for users to ask questions. The built-in artificial intelligence system realizes users‘ requirements and provides suitable answers to the user with video, audio, images and text.

1. INTRODUCTION

1.1*VOICE BOT FOR BANKING:* Voice bot banking Assistants are software programs that help you ease your day to day tasks, such as showing weather report, creating reminders, making shopping lists etc. They can take commands via text (online chat bots) or by voice. Voice based intelligent assistants need an invoking word or wake word to activate the listener,

followed by the command. For my project the wake word is Voice Bot Banking. We have so many Voice bot banking assistants, such as Apple’s Siri, Amazon’s Alexa and Microsoft’s Cortana. For this project, wake word was chosen Voice Bot Banking.This system is designed to be used efficiently on desktop359s. Personal assistant software improves user productivity by managing routine tasks of the user and by providing information from online sources to the user. Voice Bot Banking Is Effortless To Use. Call The Wake Word ‘Voice Bot Banking’ followed by the command. And within seconds, it gets executed.

Voice searches have dominated over text search. Web searches conducted via mobile devices have only just overtaken those carried out using a computer and the analysts are already predicting that 50% of searches will be via voice by

2020.Voice bot banking assistants are turning out to be smarter than ever. Allow your intelligent assistant to make email work for you. This project was started on the premise that there is sufficient amount of openly available data and information on the web that can be utilized to build a Voice bot banking assistant that has access to making intelligent decisions for routine user activities.

2. LITERATURE REVIEW

A LARGE-SCALE DATABASE AND A CNN MODEL FOR SIGNATURE VERIFICATION-2021

METHOD **:** proposed a method for off-line signature verification and recognition system using the global, directional and grid features of signatures. Support Vector Machine (SVM) was used to verify and classify the signatures. Fernando Alonso-Fernandez et al., evaluated signature verification using two different commercial Tablet PCs in [10]. Authentication performance experiments are reported by using a database of 3000 signature images. State-of-art methods for signature verification have been reviewed.

TITLE: ONLINE IMAGE SYNTHESIS AND SEMI-SUPERVISED LEARNING FOR SIGNATURE VERIFICATION-2020

METHOD: have proposed a method based on image registration for off-line Persian signature identification and verification. They used DWT for features extraction and Euclidean distance for matching. However, the method is language dependent. A machine learning approach to offline signature verification has been presented.

TITLE : SURVEY ON CHATBOT DESIGN TECHNIQUES IN SPEECH CONVERSATION

METHOD : In this paper, it can be said that the development and improvement of Chatbot design would not grow at a predictable rate due to the variety of methods and approaches used to design a Chatbot. General-purpose Chatbots need improvements by designing more comprehensive knowledge bases.

TITLE : AN APPROACH TO ENHANCE CHATBOT SEMANTIC POWER AND MAINTAINABILITY: EXPERIENCES WITHIN THE FRASI PROJECT

METHOD : The approach exploits an ontology to construct dynamic answers as a result of an inference process about the domain the ontology is exploited also to automatically populate, off-line, the chatbot KB by translating properties and relations between concepts into AIML categories.

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TITLE : INTELLIGENT WEB-BASED VOICE CHAT BOT

METHOD : The combination of voice input and voice output allows for a simpler experience which allows a client to run on many types of platforms. The system resulted in a distributed environment to allow for resource management and stability between modules.

3. *EXISTING SYSTEM*

Usually, user needs to manually manage multiple sets of applications to complete one task. For example, a user trying to make a travel plan needs to check for airport codes for nearby airports and then check travel sites for tickets between combinations of airports to reach the destination.

There is need of a system that can manage tasks effortlessly. We already have multiple Voice bot banking assistants. But we hardly use it. There are number of people who have issues in voice recognition. These systems can understand English phrases but they fail to recognize in our accent. Also, they are easy to use on mobile devices than desktop systems. There is need of a Voice bot banking assistant that can understand English in Indian accent and work on desktop system.

When a Voice bot banking assistant is not able to answer questions accurately, it's because it lacks the proper context or doesn't understand the intent of the question. Its ability to answer questions relevantly only happens with rigorous optimization, involving both humans and machine learning. Continuously ensuring solid quality control strategies will also help manage the risk of the Voice bot banking assistant learning undesired bad behaviors. They require large amount of information to be fed in order for it to work efficiently.

Voice bot banking assistant should be able to model complex task dependencies and use these models to recommend optimized plans for the user.

It needs to be tested for finding optimum paths when a task has multiple sub-tasks and each sub-task can have its own sub-tasks. In such a case there can be multiple solutions to paths, and the it should be able to consider user preferences, other active tasks, priorities in order to recommend a particular plan.

3.1.1 DRAWBACKS

Accuracy: Voice recognition technology may not always accurately recognize what the user is saying. This can lead to errors in the authentication process or misunderstandings that can affect the user's account.

Security: There is a risk of unauthorized access to the user's account if the voice recognition technology is not properly secured. Hackers may be able to mimic the user's voice or use other methods to gain access to the account.

Accessibility: Some users may have difficulty using voice recognition technology, either due to language barriers, speech impediments, or other disabilities. This can create barriers to accessing their account and may make it more difficult for them to complete transactions.

Technical issues: Like any technology, voice recognition bots can experience technical issues, such as poor audio quality, network connectivity problems, or software bugs. These issues can disrupt the user's experience and may make it more difficult to complete transactions.

Limited functionality: Voice recognition technology may not be able to perform all the functions that a user needs to do on their account. For example, it may not be able to process certain types of transactions, or may not be able to access certain account features**.**

4. PROPOSED SYSTEM

To reduce the wastage of time in Automated Option Based customer banking service. To enable system to answer to customer like video, audio, images asked by user or customer To give instant solution to the query and give appropriate output using voice recognition technique.

To give response from system in form of voice and in native language to user for increasing user feasibility.

4.1 ADVANTAGES:

They can give customers information on their

accounts and help them clear banking doubt from their smartphones.

An automated chatbot program can communicate with the bank's customers via voice messages on users' interests.

These bots are trained with existing issues that have occurred prior to it. So, If the customer has any doubts related to them then these bots will help the customers in solving them and the customer service agents can work on the new issues and critical problems.

Feasibility Study

Feasibility study can help you determine whether or not you should proceed with your project. It is essential to evaluate cost and benefit. It is essential to evaluate cost and benefit of the proposed system. Five types of feasibility study are taken into consideration.

Technical feasibility**:** It includes finding out technologies for the project, both hardware and software. For Voice bot banking assistant, user must have microphone to convey their message and a speaker to listen when system speaks.

These are very cheap now a days and everyone generally possess them. Besides, system needs internet connection. While using VOICE BOT BANKING, make sure you have a steady internet connection. It is also not an issue in this era where almost every home or office has Wi-Fi.

Operational feasibility: It is the ease and simplicity of operation of proposed system. System does not require any special skill set for users to operate it. In fact, it is designed to be used by almost everyone.

Economical feasibility: Here, we find the total cost and benefit of the proposed system over current system. For this project, the main cost is documentation cost. User also would have to pay for microphone and speakers. Again, they are cheap and available. As far as maintenance is concerned, VOICE BOT BANKING won't cost too much.

Organizational feasibility: This shows the management and organizational structure of the project. This project is not built by a team. The management tasks are all to be carried out by a single person. That won't create any management issues and will increase the feasibility of the project.

Cultural feasibility: It deals with compatibility of the project with cultural environment. Voice bot banking assistant is built in accordance with the general culture. The project is named VOICE BOT BANKING so as to represent Indian culture without undermining local beliefs.

This project is technically feasible with no external hardware requirements. Also it is simple in operation and does not cost training or repairs. Overall feasibility study of the project reveals that the goals of the proposed system are achievable. Decision is taken to proceed with the project.

4.2 OVERVIEW:

Voice recognition bot is a type of artificial intelligence technology that is designed to interpret and respond to spoken commands or prompts from users.

It works by analyzing the sound waves generated by the user's voice and translating them into text, which can then be processed by a computer program.

Voice recognition bots are used in a variety of applications, including internet banking, virtual assistants, smart home devices, and customer service systems. They are often designed to recognize specific phrases or keywords and respond with pre-programmed actions or

responses.

Advancements in machine learning and natural language processing have led to significant improvements in the accuracy and functionality of voice recognition bots. However, there are still some limitations to the technology, such as difficulty recognizing certain accents or dialects and the potential for errors in interpreting spoken commands.

Overall, voice recognition bots offer a convenient and efficient way for users to interact with technology and perform tasks through natural language communication.

4.3 ALGORITHM:

Natural language processing (NLP) is an interdisciplinary subfieldof linguistics, computer science, and artificial intelligence concerned with the interactions between computers and human language, in particular how to program computers to process and analyze large amounts of natural language data. The goal is a computer capable of "understanding" the contents of documents, including the contextual nuances of the language within them. The technology can then accurately extract information and insights contained in the documents as well as categorize and organize the documents themselves. Challenges in natural language processing frequently involve speech recognition, natural-language understanding, and natural-language generation. NLP algorithms can be used to build chatbots that can interact with users in a natural language. Chatbots can be used for customer service, lead generation, or other applications.

This system is being build keeping in mind the generally available hardware compatibility. Here are the minimum hardware Voice bot banking assistant.

- Pentium-pro processor or later.
- RAM 512MB

The Pentium Pro processor is an older CPU architecture that was first released in 1995. While it was a significant advancement at the time, it is not suitable for modern voicebot internet banking applications due to its limited processing power and outdated architecture.

To develop a voicebot internet banking system, you will need a modern CPU architecture that can handle the demands of natural language processing (NLP), machine learning, and speech recognition. Some popular CPU architectures used in modern voicebot internet banking systems include Intel Core i5 and i7, AMD Ryzen, and ARM-based processors.

When selecting a processor for your voicebot internet banking system, consider the following factors:

SOFTWARE REQUIREMENTS

- Windows 7(32-bit) or above.
- Python 2.7 or later
- Chrome Driver
- Selenium Web Automation

UNIT TESTING:

Unit testing focuses verification efforts on the smallest unit of software design,

the module. This is also known as “module testing” .The modules are tested separately.

This testing is carried out during programming stage itself. In this testing step, each module is found to be working satisfactorily as regard to the expected output from the module.

INTEGRATION TESTING

Data can be lost across an interface; one module can

have an adverse effect on others; sub-functions when combined may not produce the desired major functions; integration testing is a systematic testing for constructing the program structure. Here correction is difficult because the vast expenses of the entire program complicate the isolation of causes. This is the integration-testing step; all the errors encountered are corrected for the next testing step.

VALIDATION TESTING:

Verification testing runs the system in a simulated environment using simulated data. This simulated test is sometimes called alpha testing. This simulated test is primarily looking for errors and monitions regarding end user and decisions design specifications hat where specified in the earlier phases but not fulfilled during construction.

Validation refers to the process of using software in a live environment in order to find errors. The feedback from the validation phase generally produces changes in the software to deal with errors and failures that are uncovered. Than a set of user sites is selected that puts the system in to use on a live basis. They are called beta tests.

The beta test suits use the system in day to day activities. They process live transactions and produce normal system output. The system is live in every sense of the word; except that the users are aware they are using a system that can fail. But the transactions that are entered and persons using the system are real. Validation may continue for several months. During the course of validating the system, failure may occur and the software will be changed. Continued use may produce additional failures and need for still more changes.

OUTPUT TESTING:

After performing the validation, the next step is output testing of the proposed system, since no system could be useful if it does not produce the required output in the specified format. Asking the users about the format required by them tests the output generated or displayed by the system under consideration. Hence the output format is considered in two ways-one is on screen and another in printed format.

USER ACCEPTANCE TESTING:

User acceptance of a system is the key factor for the success of any system. he system under consideration is tested for the user acceptance by constantly keeping in touch with the prospective system users at the time of developing and making changes whenever required. This is done in regard to the following point:

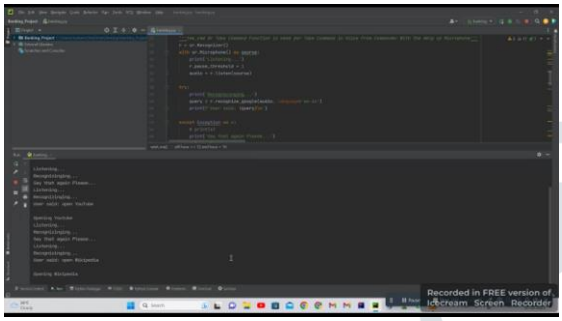
An acceptance test has the objective of selling the user on the validity and reliability of the system .it verifies that the system‟s procedures operate to system specifications and that the integrity of important data is maintained. Performance of an acceptance test is actually the user‟s show. User motivation is very important for the successful performance of the system. After that a comprehensive test report is prepared. This report shows the system‟s tolerance, Performance range, error rate and accuracy.

5. CONCLUSION

A chat bot is a piece of software that can have a conversation with a person. They listen and respond with relevant information. There are digital assistants that are voice activated, and there are chat bots, voice or text activated. Bots can vary according to the back-end integration of artificial intelligence. This allows brands to do more for the customer than respond with basic logic. Chat bots are supposedly better than chat software which often feels like one dimensional conversation. Chat

bots are more conversational whereas digital or intelligent assistants go beyond bots to perform tasks that assist the user. Most customers have very low expectations when it comes to the self-service offered by banks because often it is terrible. Many self-service transactions result in a customer having to contact the call center anyway, not a great customer experience.

RESULT ANALYSIS:



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