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Artificial Intelligence: Based Voice Assistance

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ABSTRACT

Technological advancements in Artificial Intelligence (AI) are among the most recent to arise, carrying with it difficult and innovative features that are increasing at a rapid pace. While it appears that these technologies are becoming extensively accepted, some people do not want to use them in specific situations. In fact, its been studied extensively for many decades, and there are a plethora of generic models available in literature that explain how humans respond to new technological developments. The development of more special model for new technologies differentproperties, on the other hand, appears to be required. Using the information gathered from this research, we have constructed a concept model that includes a new scheme performance construction known as "interaction quality," which we believe is more accurate in depicting the deployment of artificial intelligence-based innovations. In addition to the double our model, we make use of such a voice-activated assistantto help us with our research. Utilizing data from the a field survey, we examined vr technology (VAS) technologiesas just an instance of the this tech and validated a hypothesis model using the results of the survey results. Specifically, our findings indicate that service quality of aconnection has a massive effect on a person's confidence, which then in turn will lead to an application of new technology.

Keywords: *Artificial Intelligence, Voice Assistant, Trust, Adoption of Technology.*

1. INTRODUCTION

The use of personal assistants, also known as virtual assistants, has become increasingly common in our daily lives during the past few years. Because they helppeople and organisations to fulfil their dutiesmore quickly and efficiently, these types of technologies are being adopted by all sectorsof society. This system was created on the basis of a desktop-based application. This system is equipped with a Virtual Assistant, which really is capable of gathering user input, comprehending it, evaluating it, and accomplishing tasks as a result of information collected and comprehended by the assistant. The consumers benefit from this by saving a large amount of time.

With the growing quantities of information, as well as the importance of obtaining correct and accurate information within a short of time, search engines, particularly web search engines, were developed.

The agriculture industry makes a significantcontribution to the development of the country. Consequently, a large number of individuals all around the world, particularly those in underdeveloped nations, will have new employment options.

The improvement of technology inside the agriculture area occurs on a daily basis , according to the USDA. Even though the government is now collecting data on rain and agricultural productivity, this data is of little value to farmers. Farmers will only gain from the study and collecting of data asit will give them lots relationship trends, which they will be able to exploit to their advantage. Agricultural educators can also benefit from software designed to teach farmers on a variety of technologies. The bulk of these procedures, on the other hand, are not practicable since they do not provideprecise responses to the questions posed by farmers during their surveys. Several hundred thousand farmers are located in rural areas of the country and, as a result, do not even have access to basic information on crop productivity, soil conditions, and seed varieties. Poor crop and livestock efficiency is caused by a lack of access to agricultural knowledge and information about the most up-to-date farming practises, as well as a lack of livestock efficiency.

As a solution to these issues, a voice assistant based on pattern recognition technology is offered. This voice assistant provides an interface through which users, in this case growers, can engage with the helper in an effective and timely way.

A virtual voice assistant named "Kishan Mitra" assists farmers by answering all of their queries in a timely and effective manner. Machine Learning techniques are used to generate

query responses, which arethen presented to the user. People who are just starting started in agriculture as well asthose who are currently working in the area will profit from this programme, as well.

The incorporation of sentiment categorization and language understandinginto this application could prove advantageous in the near future.

If we are aware of it, or if we are unconscious of it, it is called it. All of the features and ease-of-use that they provide, after all, are what makes them so appealing to customers. It is also possible to automate certain aspects of a user's day-to-day activities, allowing the user to dedicate moretime and attention to the things that are mostimportant to them. Personal assistants are also capable of automating elements of a user's day-to-day duties. Personnel assistantsprovide services such as making phone calls,composing messages, taking photographs, storing to-do lists at a home office, accessing the internet, and performing a variety of other tasks. \ The ability of individuals to spend more time and energy to what is essential to them is critical, regardless of whether they are undertaking personal or professional tasks.intelligence- based technologies are more relevant to users. Because of this, they may improve the implementation of their products and expose them to the marketplace in a much more effective manner.

2. THEORETICALBACKGROUND

The advancement of technology, as well as its application to the lives of individuals, hasmaintained technology adoption as one of the most interesting research subjects. It wasDavis Jr. (1986) who first proposed the Technology Acceptance (TAM), which is a conceptual framework for users' tendency touse technology. Over the years, this basic model has undergone several additions and adjustments based on the characteristics of innovations and the behavioural characteristics of end-users (see Maranguni and Grani (2015)).

According to Venkatesh (2003; 2012), a number of studies have been conducted in an attempt to identify and explain factors that influence users' acceptance/adoption of new technology, both at the organisational and individual levels. While this is true, it does not imply that we have conducted study into adoption models, given the fact that new technologies are introduced each year, and their special features necessitate the need for unique adoption studies.

There are some studies that are attempting to be using psychology & behavioural theories to discover new constructs that will aid in the development of improved adoption models for emerging technologies. Human- computer interaction (HCI) is an important notion that should be taken into consideration while developing AI-based systems. As computer have become more prevalent in practically every aspect of our life, human-computer interaction (HCI) has emerged as a much more essential field in recent years. Increasingly essential in interactive systems, human-computer interaction (HCI) is becoming increasingly important. It will become even more crucial as everyone around us has become electronic as well as unwittingly engrained to engaging computer science capabilities that help with us that every day continues to live extra thrilling, effective, and convenient.

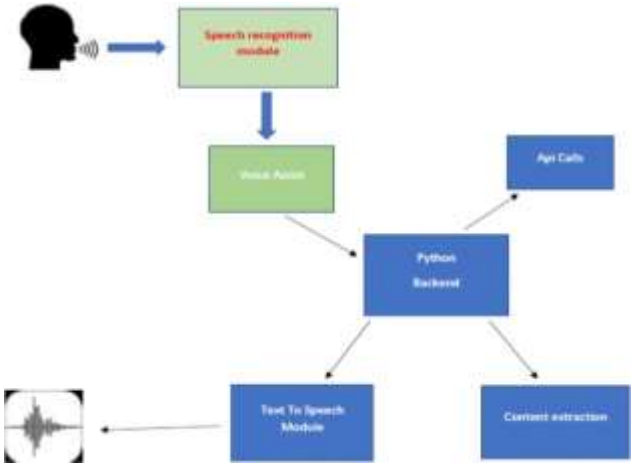
With a predicted population of more than 1 trillion by 2050, farming is expected to see alarge growth in order — in a context of minimal economic development — by approximately 50% when compared to the current situation in 2013. (Food and Agriculture Organization of the United Nations, 2017). Just at moment, crop yields accounts for around 37.7% of the total land area under cultivation. Agriculture is important for a multitude of reasons, including the production of jobs and the contribution to the national income of the country. Besides making a critical role in theeconomic prosperity of industrial countries, the sector also has a vital role to play as in economies of developing countries. The expansion of urban has resulted in a significant increase in the per-capita living of the rural community. Because of this, it will be sensible and acceptable to focus greater emphasis on the farming production in the next years. Agricultural output accounts for 18 percent of GDP in nations such as India, where the sector employs halfof the country's labour force, resulting in an 18 percent contribution to the country's gross domestic product. Development of agricultural production will inevitably lead to rural development, which will in turn result in rural transformation, which will ultimately end in structural change of the country (Mogili and Deepak, 2018; Shah et al., 2019).

As a result of the advent of new technology, several sectors around the world have seen substantial transformations (Kakkad et al., 2019). Even though agriculture is the least digitalized industry, there has been a significant increase in the development ” or “ commercialization of agricultural technologies, which is surprising. Given that Artificial Intelligence (AI) has begun to playa large role in our daily lives, it has the potential to greatly expand both our perceptions of the world as well as our ability to impact our surroundings (Kundaliaet al., 2020; Gandhi et al., 2020; Ahir et al., 2020). Using crop assignment and vehicle routing in conjunction, Plessen (2019) introduced a method for collection planning that is based on the coupling of crop assignment and vehicle routing. As a result of these technology advancement, the personnel, which was once restricted to a small range of manufacturing sectors, is nowcontributing to a diverse variety of fields.

Artificial intelligence is based on the foundations of a diverse range of fields, including biology, grammar, computer science, mathematics, psychiatry, and engineering, to name a few. According to Jha and colleagues (2019), a short summary of the current state of farm automation applications may be found here.As part of our contribution, we merged the ISSM, SET, and HCI models and integrated them into the technology adoption literature in order toproduce a new model that can better represent the implementation of new technological advances than the existing models. We also evaluated human innovativeness as a moderator, as it has the potential to increase individuals' trust in the use of VASs. In the next section, we will explain our constructions and explain howwe based our hypothesis on the theories as well as other research that have beendiscussed thus far.

3. RESEARCH MODEL AND HYPOTHESES

Python is the language of programming that hasbeen used for this work, and that is well because of its versatility as well as the accessibility of a huge number of library resources. To develop the Virtual Assistant, we used the Microsoft Visual Coding (IDE), which is a development tool which supports the Python language and was controlled by Software. The Py Voice Recognition library, which is supplied with the language, contains a number of built-in functions that can be used to recognize speech.



As a starting point, we will build a program thatwill transform the written text into speech.

Python's pyttsx3 module is used to accomplish this goal. The library instance will be assigned toa variable as soon as it is created in the programme. Using the say() method, we will pass in a string to be read as an argument to it, and the outcome will be a vocal answer in return.

It has been necessary to develop yet another function in order to recognise the voice control that has been provided by the user. Specifically, we define the microscope source in that function, and then we utilise the relevant functions within its scope, with results being recorded in a variable as a result. As a last step,we can make use of a range of services, including the Google Voice Recognition engine, the Windows Bing Voice Activation engine, andservices from a variety of other significant corporations, like IBM, Houndify, and, among many others.

A text files format which can be read on a personal computer was chosen for this study because this would convert an analogue voice control into an electronic text format that could be read by the user. We just provide Assistant with the text as inputs, and it will run a search for the keyword that we specify in the text. It is possible that the input command will be invoked if it contains a word that matches a word inside the respective function. As a result,the activity would be carried out as a result, including such displaying the current time or date, displaying the battery status, taking a screen capture, or saving a short note, among many other things.

The biggest advantage of using this Personalized Coach To help is that it save a large amount of time. It can also manage enquiries from people who talk in a range of different voices, which is particularly useful. Although there is no rule stating that a specific command must be given in order to initiate a certain activity, it is recommended that you do so. There are a few exceptions to this rule, as follows. It is possible for users to communicate with the system by using natural language commands. It was written in the Python programming language (version 3.8.3) to construct this Vocal style Assistant for said personal computer. In fact, we used Visual Basic Code as our integrated development environment (IDE) (Integrated DevelopmentEnvironment).

Reading and submitting data to the RASA model, as well as getting the results, were all accomplished through the use of the elevated programming language Python, which was also used to develop the model.

When it comes to intent, there is nothing moreimportant than that of the goal which the user is aiming to accomplish. Pretend you're in the following situation: For example, if a user says,"Book a seat at Cliff House today," their objective can be classified as one that involves reservation of a table.

Input from a user is processed by an entity, whose job is to extract meaningful from the user's request. The entities are obtained fromthe preceding example, "Book a table at Cliff House last night," which is the location, the date, and the hour of the reservation. Today'sevent will take place at Cliff House, as well as the time is evening.

Hypothesis 1: The quality of information of aVAS has a beneficial impact on the trust that users have in the VAS.

Hypothesis 2: The user's faith in a VAS is positively influenced by the quality dimensionsof the VAS.

Human-computer interaction (HCI) is defined in the literature as the conversation and sharing among humans and a computer. The most important thing to remember about virtual assistant systems would be that they are more than just a computer; depending on how they are used, they can even act as a friend to their users. In fact, some people use these systems to communicate with them as if they were real
people. In this situation, the quality of the interaction should be improved and should include some features of human interactions, such as body language. The quality of interaction is a critical consideration for many different types of applications and interactions. Examples include Wang et al. (2005)'s investigation on the interaction between both the information management development team as well as the users, and their findings on the impact of this quality on the productivity and success of a project. Based on their findings, Ekinci and Dawes (2009) looked into how frontline service employees and their personality traits influence levels of engagement and customer satisfaction from theperspective of the consumers. They discovered that three personality characteristics — gregariousness, industriousness, and life satisfaction – had a significant impact on the quality of interpersonal interactions.

Hypothesis 3: The quality of an AVS's interaction with the user has a favourableimpact on the user's faith in the AVS.

Uncertainty and the perception of risk associated with a new innovation are two of themost significant barriers to its adoption, according to the literature. When it comes to social or economic interactions, trust is a crucialcomponent to consider because it can help to lessen uncertainties and perceived risks, which is especially significant when making these decisions or introducing new technologies (Gefen 2002). The ability to trust a mobile system is one of the most crucial aspects influencing its adoption (Zhou2013). In the dictionary, trust is defined as "a psychological condition characterised by the decision to tolerate vulnerability in the face of favourable expectations about intentions or conduct of another" (Rousseau et al. 1998). Because of the uncertain nature of the M-commerce environment, trust is much more complex and important than it is in traditional commerce environments (Lu et al. 2005). Kim and colleagues (2004) established a model that asserts that early confidence in the electronic medium as a banking medium, as well as trust in the bank, are the most important predictors of

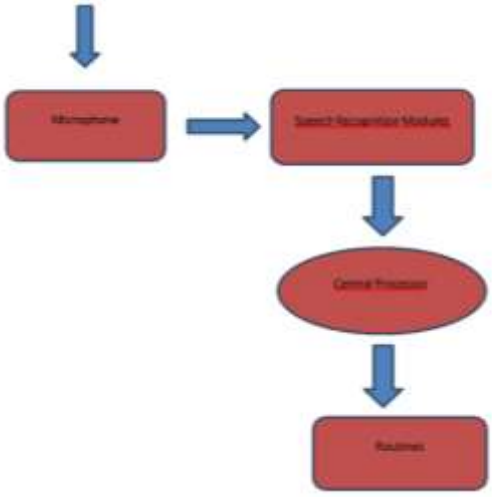
Internet banking adoption. According to theirfindings, there is a statistically significant association among initial trust inside the electronic medium and the uptake of Internet banking services. The research of Yu et al. (2015), which is founded upon trust theory, empirically investigates the relationship between opting to continue using online banking and their trustworthiness. Initial relationship between trust utility as beliefs will have an impact on a person's behavioural intention, according to the reasoned action theory (TRA). Gefen (2002) asserts that the perception of risk and trust influences behaviour. When it comes to purchasing decisions in electronic commerce, customers place a high value on trust and risk (Kim et al.
2008).

Hypothesis 4: The intention of a user to utilise a VAS is positively influenced by their trust in the VAS.

An individual's willingness to experiment with any new information system was defined for the first occasion by Agarwal and Prasad (1998),and it is characterised by their eagerness to try out any new system. They have looked into the effects of innovativeness just on relationship between education about just a latest tech as well as the impression of it, and the connection here between perception and the intention to utilise the technology in the future. Because they are constantly on the lookout for fresh knowledge, an inventive person is likely to accept a new technology. The ability to be creative and imaginative has a significant impact on the acceptance of new technologies. It was discovered by Lu et al. (2005) that there is a relationship between the adoption intention wireless mobile technology, societal influences, and individual innovativeness. Social influences, personal innovativeness, and adoption aspirations were revealed to have a strong causal link, the researchers discovered. Similarly, in another research, Rouibah et al. (2016) discovered that innovativeness has a statistically significant link with trust in the adoption of internet payment services. As a result of these issues, we believe that an individual's willingness to employ artificial intelligence-based technology is influenced by their own personal innovativeness.

4. RESEARCH METHODS

The project's initial phases included evaluating the audio commands provided by the user through a microphone and recording the results.



In addition to retrieving information, this can include operating the internal files of a computer, among other things. This study will perform an empirical qualitative research study based on the above-mentioned literary works and their instances, and it will report its findings.Tests are carried out by programming in accordance with books and internet resources, with the clear and explicit purpose of identifying best practises and developing a more in-depth understanding of the Voice Assistant technology.

5. RESULTS AND ANALYSES

The partial least - square (PLS) method was employed to examine our structural model. We begin by examining the reliability of our measurements and concepts, and then we examine our structural model both with each moderator to determine how well our suggested framework can describe variance in intention to use VAS in the future.

6. MEASUREMENT MODEL VALIDATION

Module for Speech Recognition
When converting speech input to text, the system will make advantage of Part of the google speech recognition system to do this. The input device for speech The users are able to access texts from unique corpus that have been organised solely on the computer networkof the information centre in which they are located. Texts captured by the microphone are temporarily saved on the device before being transferred to the Google cloud, where they can be recognised by speech recognition technology. A similar text is then received and put into the central processor as a result of this.

Python backends are used for a variety of tasks.
Once this is determined, it performs API Call and Contextual Extraction by comparing the order or speech output to data collected from of the voice recognition module in Python and doing context extraction. Afterwards, the same output is returned to the py backend, which then gives your user with the expected outcome.

API Calls API (Application Programming Interface) is an abbreviation for Application Programming nterface. Software ntermediaries which allow two apps to communicate with one another are known as APIs (application programming nterfaces). Another way of putting it is that an API is essentially a messenger that sends your queries to the providers that you've asked them from and returns the results to the sender.

Extraction of Context
Using computer documents as input, context extraction (CE) is the task of automatically extracting organised data from a variety of various andor quasi-computer documents. Mostof the time, the activity entails the analysis of human language documents through the application of natural language (NLP). TEST RESULTS Recent breakthroughs in multimedia document processing, including some content extraction from images, audio, and video, might be thought of as context extraction (Context Extraction Test Results).

Module for Text-to-Speech
With Text-to-Speech, we mean the ability of computer networks to read reading text in a natural-sounding voice (TTS). The written text istranslated to a phonics representations, which is then converted to sound waves, which can beoutput as sound by a sound processor when it isprocessed by a TTS Engine Third-party publishers, among other things, provide a variety of TTS engines in a number of languages, accents, and specialised vocabularies, to name afew examples.

7. DISCUSSION

The purpose of this research is to gain a better understanding of

the content user 's preference, which have an impact on the adoption of artificial intelligence-based solutions. We discovered that the quality of the interface is a significant element in the adoptionof VAS, which is an example of an AI-based system.

The innovator and the early adopter are two sorts of users who adopt a technology before the rest of the population, according to the diffusion of innovation paradigm (Rogers 1962).Indeed, people are intrigued by the prospect of experimenting with new technology, despite the fact that there are several uncertainties and hazards. Artificial intelligence-based solutions are new areas of research that are based on a variety of disciplines and are still in the early stages of their development. Consequently, persons who intend to utilise them can be termed early adopters in this context. To investigate the impact of entrepreneurial intention on users' trust and intention, we conducted experiments in accordance with this approach. Our results do not demonstrate thatpersonal innovativeness has a moderating effect on the relationship among impact on intention to use AI-based VAS, but we believe that by increasing the sample size, we will be able to validate this hypothesis.

It is hoped that the findings of this study would provide useful information to both practitioners and researchers. Three substantial contributions have been made to the literature as a result of this investigation. We first utilised a variety of theoretical viewpoints, including those from ISSM, SET, and HCI, and integrated them into the adoption literature in order to construct a new adoption that is more accurate in describing the adoption of emerging technologies. Multiple different theories allow us to explore phenomena from a variety of angles and construct a more complete model to better understand them as well as the relationships that exist between them, as well as the connections between them. Second, by merging several theoretical viewpoints, we discovered that the quality of interactions was a significant influence in the adoption of technology.

Quality of interaction between frontline service staff and clients has been identified in marketing literature, and quality of interaction has been researched in information systems literature based on the machinery characteristics of technologies/systems, according to marketing literature. In this study,we integrated two earlier perspectives on AI- based technologies, and a new notion of interaction quality was discovered that might be used to better explain various features of emerging technologies. The findings of this study are summarised in the following section. Third, we demonstrated the ability of balancing personal innovativeness with quality elementsand trust in a way that was understandable.

Despite the fact that this moderating role is notimportant, as we previously indicated, several fascinating difficulties have been identified, which may prompt the development of new survey questions to also be investigated.

In terms of practical ramifications, the results ofthe study enable us to develop services or products that are far more appealing to users. Our findings demonstrate that interaction quality is a crucial metric for AI-based technologies, and that enterprises should take this parameter into consideration when designing and developing their apps. Human faces and facial impressions, for example, may improve the levels of engagement of VASs by alleviating the feeling that one is dealing with an artificial intelligence system (AI).

Furthermore, the findings may be useful in the development of improved marketing techniques and advertising plans. The findings of this study assist companies and marketing managers in better understanding their customers' perceptions of their products, as well as which components of their goods are more essential in their customers' evaluation of their products. Managers could enhance their sales by putting more emphasis on the evaluation criteria of users in the marketing plans and commercials.

In this exploratory study, we looked into the adoption of artificial intelligence-based technologies based on the effects of quality characteristics on the development of trust among users. The proposed factors were evaluated, and the findings were analysed fromboth a theoretical and a practical standpoint.

This investigation, like many others, has some limitations, which are similar to those of previous studies. The first drawback of this study is the sample size that was used. Despite the fact that the sample size of the study was sufficient to be confident in the results, further research into larger samples may be beneficial in further understanding the interactions between components. To give an example, the significance of an accent or various languages inthe quality the VAS to whether or not people understand actual words could not be examined in depth.

As a result, the sample we chose may not have been a good representation of the entire population, and it may be difficult to generalise our conclusions. Based on this constraint, future study might include a larger sample size, respondents from a larger population, and responders from a variety of different countries. Second, because of the survey method's reliance on self-reported perceptions,these variables can only be quantified in terms of the responses to the survey. It is preferable to measure some variables accurately in order to conduct a more specific analysis in future study, such as personal innovativeness, in order to conduct a more explicit study in the future.

Third, although the quality of interactions has been researched, we did not look into the manyaspects of interaction quality. The results of thisstudy indicate that contact quality is a vital aspect of quality in the desire to utilise artificial intelligence-based technologies; therefore, further research into its aspects and antecedents should be conducted in the future. Understanding the antecedent of interactional justice could be beneficial in better understanding this component of quality, whichcan assist managers and designers in developingapps that are of higher quality and much more visually appealing to users. For the fourth time, the dependent variable of the study is the intention to utilise VAS; we did not examine actual adoption of technology in this study. It isvital to analyse actual usage rather than intention to use because users' actual behaviour cannot be accurately measured by their intentions, and future research might be conducted to investigate actual use of VAS. Finally, we have only looked at VAS as a single example of AI-based technology; therefore, it would be beneficial to look at the adoption of additional AI-based applications in order to better understand the current inadequacies of VAS as well as the hurdles to acceptance of thistechnology.

Understanding these flaws and roadblocks could aid service designers in developing more effective applications and services in the future.

8. CONCLUSION

In the paper "Virtual Assistant Using Python," a study of a design and development of Digital Assistance was offered. The project is built using open software modules that have the support of the PyCharm community, which ensures that it will be able to accommodate any future upgrades. It is more flexible and straightforward to add new features to this project because of the customisable nature of the code. This makes it less likely that new additions will interfere with current system's functionality.

Besides that, it not only reacts to human orders,but it can also deliver responses to users in response to queries you have made or words you have spoken, including such initiating tasks and completing operations, among others. It consists in greeting the user inside the manner wherein the user is most comfortable, and it allows the user to freely communicate with voice assistant. The programme should also reduce any form of superfluous manual effort ittakes in the user's lifestyle in order to finish each job. The whole system is built to function with the current speech rather than with the next one that comes in to replace it.

Agriculture is extremely important to the economy. Many people rely on it for food, natural resources, and even employment. It has been done for centuries without fail. The development of technology and the advancement of agricultural practises have resulted in changes in agricultural practises. A shortage of resources forces small farmers in India to continue using conventional methods of production. This technology functions as a digital assistant, providing guidance to producers and answering their concerns regarding agricultural operations, resulting in anincrease in income for the farmers. Users may be able to upload images and videos to the assistant in the future in order to receive responses. Among the ideas for the future are sound - visual chatting with the expert, virtual assistant responses by video and picture, and more. Overall, the usage of bots will be beneficial to farmers and, as a result, the economy of the country. With advanced methodologies, artificial intelligence can bring about significant upheaval in agriculture, redefining the usual method and constraints of the industry.

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