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**To study impact of Artificial Intelligence in Voice Recognition**

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**Abstract:**

Artificial intelligence is a term used for demonstrating the intelligence exhibited by machines while operating effectively. Speech is been made understandable to the computer or machine by the means of voice recognition. It is frequently employed for commercial, military, and business purposes.

Voice or speaker recognition refers to a machine's or program's capability to accept and read pronunciation or grasp and execute verbal directives. Voice recognition has helped with the advancement of AI and intelligent assistants such as Amazon's Alexa, Apple's Siri, and Microsoft's Cortana.

**Background:**

Artificial intelligence (AI)-based voice recognition is a software technology fuelled by cutting-edge solutions like Natural Language Processing (NLP) . an AI system that analyses natural human voice is (NLP). A machine's capacity to mimic intelligent human conduct is called Machine Learning (ML). Sometimes (NLP) is referred to as human language processing.

**AIM:**

This paper aims to discuss the topic of voice recognition using artificial intelligence, its effects on the future, and the convenience it will bring about for future generations.

**Keywords:**

Artificial intelligence, Speech recognition, Conversion of speech signals.

**Objectives:**

1. To study what is Artificial Intelligence.
2. To study what is Voice Recognition using Artificial Intelligence
3. What is the contribution of Voice Recognition using Artificial Intelligence in the various fields
4. To study whether Voice Recognition using Artificial Intelligence can be used to understand emotions

**Introduction:**

McCarthy first used the phrase artificial intelligence in 1956 to refer to the mental capabilities of both machines and artificial intelligence. The combination of the

discipline of computer science and the intelligence of machines is thus literally described as “Making intelligent machines specifically computer programs”. It is referred to as the computational study of mental capacities as there are many different kinds of humans, animals, and intelligent robots involved in this. There is assured success if there are intelligent machine working on possible actions.

Artificial intelligence processes voice recognition by using IP Words.

The IP words are scanned and compared to internal databases of pre-stored terms. Some processes come into action when a keyword is found. Thus, speech recognition eliminates the requirement for you to input a program in a special language while creating software by allowing you to offer IP to an application using your voice and in your own language. Similar to clicking the mouse and typing on the keyboard, you can use your voice to provide an application to the Internet Protocol.

**Contribution In Various Fields :**

**1. Customer care:** This is one of the most important artificial intelligence applications in customer service. Speech recognition is an efficient call centre service solution that is accessible 24 a week for a fraction of the cost of a staff of customer support professionals.

There are many frequent voice recognition applications in customer service: IVR

(Interactive Voice Response): It is one of the oldest speech recognition apps, allowing consumers to access the appropriate agents or address issues with voice commands.

Analytics is one of the methods where transcription of thousands of phone calls between consumers and agents aids in the identification of typical call patterns and problems.

**2. Presales:** We've all had conversations with Sales Development Representatives (SDRs) who asked us a series of questions to see whether we were a good fit for their product. where some companies call their consumers to ask basic questions such as their (age, occupation, spouse, members in the house, lifestyle, etc) to verify or ensure which insurance or facilities they'd provide you and for what you qualify. Voice bots might automate such tasks. The automation makes things efficient and quick, The perk is that the caller will not be required to wait to interact with a salesperson which delays the process and the machine will begin the review and qualifying process right now.

**3. Banking:** Based on a client-server network setup, a voice-triggered home banking system consisting of telephone speech recognition hardware is available there is a workstation with six boards for dealing with multi-channel processing with a unit of voice recognition. The voice recognition algorithm employed in the boards, each of which contains three DSPs and an MPU, performs a variety of functions, including detecting linked numbers, bank names, branch names, money amounts, and confirmation of service dialogue completion.

**4. Voice to Text:** Hands-free computing is made possible through speech recognition. Its applications include, but are not limited to, the following:

- writing emails
- Creating a Google Docs document,
- Automatic closed captioning with speech recognition (i.e., YouTube)
- Automatic translation by machine
- Sending voice texting (WhatsApp)

**5. Voice biometrics for security:** Voice biometrics uses a person's voice to authenticate them, the way face and fingerprints functions unlock your mobile. In many ways, the speech biometric will help both the consumer and the employee in terms of application. rather than typing your password to enter or log in, one might just

have to say or pronounce their password in their distinctive voice. Voice biometrics, for example, can be used to authorize transactions to guarantee they are consensual and legitimate. In high authority areas or strictly prohibited areas where only limited entries are allowed voice biometrics can be used to restrict access to only approved staff.

**6. Automotive:** Most new automobiles now include in-car voice recognition technologies as standard equipment.

The most significant advantage of this technology is that it eliminates the need for the driver to look at any place other than the road ahead while driving. These systems allow them to multitask using their voice enabling drivers to make phone calls ask voice assistants for directions, change radio stations, and play music by using simple voice instructions.

**7. Education:** Vision accounts for 80% of sighted children's learning, and their greatest drive is to explore their surroundings. Speech recognition has the ability to mitigate the difficulties of blind or low-vision pupils. Duolingo and other language learning apps employ voice recognition to assess users' language pronunciation. A computer-aided language learning tool that evaluates pronunciation. Many of different languages can be learned and understood through this.

**8. Health care:** Doctors should not have to worry about taking notes on patients' symptoms during their appointments. Medical transcription (MD) software is used to gather patient diagnostic notes with the help of Speech recognition software.

It has been argued that taking notes is one of the most time-consuming duties for physicians, the time can be reduced and consumed in patient appointments. This technology will help doctors to also reduce the average appointment time, which will indirectly lead to seeing more patients.

Depression speech recognition technology can listen to a patient's voice to detect the presence or absence of depressive overtones. There are mobile applications with underlying algorithms that provide users with a "mental fitness" score based on the tone, energy, fluctuations, and rhythm of their speech, among other things.

**Concerns with voice recognition**

**1. The challenge of accuracy:** If a speech recognition system (SRS) is to be useful, its accuracy must be high. Attaining a high level of precision, however, might be difficult. The noise that is caused in the background may be a significant hurdle when attempting to increase the accuracy of a speech recognition algorithm. The system when it catches the sound from the outside world encounters numerous background disturbances such as cross-talk, white noise, and other distortions that might interrupt the SRS.

**2. The challenge of language, accent, and dialect coverage:**

Another major challenge is providing the SRS with the ability to function with diverse languages, accents, and dialects. There are about more than 7000 languages around the world, with an infinite variety of accents and dialects. Over 160 dialects of English are spoken around the world. No SRS yet can cover all of them. Matching for the compatibility of the most spoken languages would be tough enough.

**3. The Challenge of Privacy and Security:**

One of the impediments to the development and use of speech technology in your organization is the security and privacy concerns that come with it. Because a speech recording is utilized as biometric data, many individuals are apprehensive to use voice technology because they do not want to reveal what is essentially their biometrics.

**Voice Recognition using Artificial Intelligence can be used to understand emotions**

- Voice assistants, as emotionally intelligent beings, will be able to sense emotions and react accordingly, offering the kind of counsel and advice you could get from a human. Consider a driver who is annoyed by traffic, is in an unfamiliar region, and needs guidance to prevent more delays. The voice assistant might recognize frustration and confusion based on the tone and tenor of that person's voice. Further driving directions can be delivered in a slow, calm, regulated voice in response.

- Clients calling customer service centres frequently express frustration, anxiety, and tension. There is a frequent attempt to solve an issue or obtain information to assist in making a purchasing choice.

- Voice assistant identifies and eliminates the need for these clients to punch a series of

buttons and repeat information at various phases of the contact.

**Conclusion:**

1. Artificial intelligence in general is a very broad subject that is growing very fast and voice recognition in it is a very crucial component of it.

2. People are still unaware of voice recognition besides Apple's Siri and now Amazon's Alexa.

3. The implementation of voice recognition must be done on soon as it is going to become popular in near future.

4. The idea of voice recognition being excessively expensive must be debunked, and software must be made more widely available in the market besides voice assistants in smart homes.

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