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ARTIFICIAL INTELLIGENCE TALKING SYSTEM FOR OFFLINE CHATTING BOX



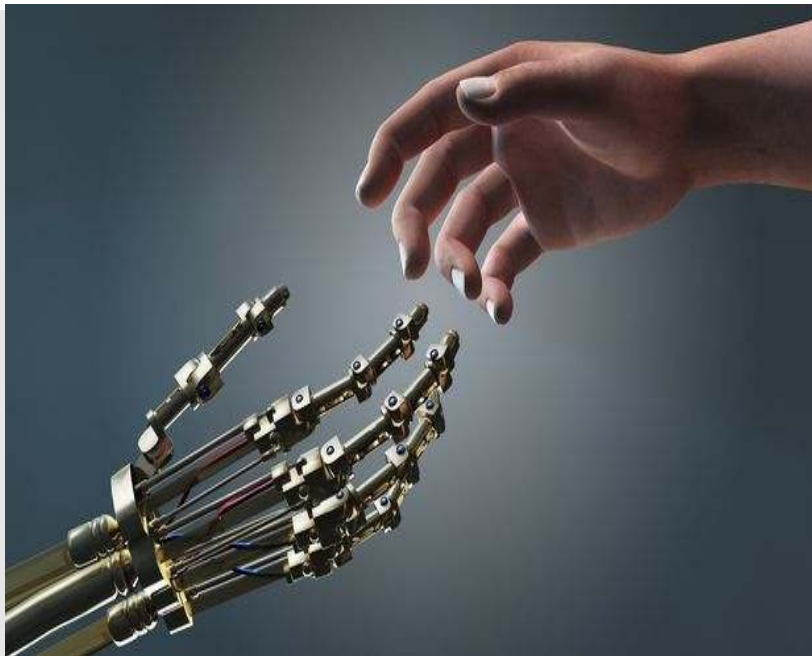
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ABSTRACT:

AI talking system using three approaches of computer science one is Theory of computation. This is used for selecting proper word from context free grammar. Other is using AI for converting text information into speech or audio form. It is a very efficient way for providing accurate answers for users of that system. Sometimes it is used for entertainment also. It is a main application of intelligent systems. It is just a simple application but we can design a powerful system by using this application. Fig 1.1 shows the actual information interface.

Artificial intelligence (AI) for speech recognition involves two basic ideas. First, it involves studying the thought processes of human beings. Second, it deals with representing those processes via machines (like computers, robots, etc). AI is the behavior of a machine, which, if performed by a human being, would be called intelligence. It makes machines smarter and more useful, and is less expensive than natural intelligence. Natural language processing (NLP) refers to artificial intelligence methods of communicating with a computer in a natural language like English. The main objective of a NLP program is to understand input and initiate action. The input words are scanned and matched against internally stored known words. Identification of a keyword causes some action to be taken. In this way, one can communicate with the computer in one's language.

KEYWORDS

Artificial Intelligence , Talking System , computer science

I. INTRODUCTION

The diligent application is an attempt to deliver a technology that plays word games to demonstrate the SAPI capabilities of windows system and the .NET Framework. The concept basically involves the creation of a predominant chatterbox like application that would embed together speech recognition and synthesis, thereby providing a virtually existing artificial personality, specifically within the Windows Vista environment. The enchanting application is implemented using the C#.net technology.

The application is designed to seem very real and flexible to make the responses appear spontaneous to the users. The artificial personality application is programmed very intelligently and is built using the increasingly sophisticated recognition rules. To do so, it makes use of the propelling Artificial Intelligence Mark-up Language. The AIML can definitely be expanded by the addition of specific files. It works best with Windows Vista rather than Windows XP, in respect of the speech recognition functionality. This is so because Windows XP does not support all the methods within the Speech namespaces. Basically, the application is simply an attempt to bring speech recognition and synthesis to the text-gaming experience. With Microsoft's speech recognition technology and the API provided through the .NET 3.0 Framework, not only is the performance fairly good, but implementing it has become easy.

The application is comprised of a text output screen, a text entry field, and a default enter button. The initial look and feel is an IBX XT theme that can be changed using voice commands. There are three menus initially available. The File menu allows the user to save a log of the conversation as a text file. The Select Voice menu allows the user to select from any of the synthetic voices installed on her machine. Vista initially comes with "Anna". Windows XP comes with "Sam". Other XP voices are available depending on which versions of Office have been installed over the lifetime of that particular instance of the OS. If the user is running Vista, then the Speech menu will allow him to toggle speech synthesis, dictation, and the context-free grammars. By doing so, the user will have the ability to speak to the application, as well as have the application speak back to him. If the user is running XP, then only speech synthesis is available, since some of the features provided by .NET 3.0 and consumed by this application do not work on XP. Speech recognition in Vista has two modes namely, the dictation and context-free recognition modes. Dictation uses context, that is, an analysis of preceding words and words following a given target of speech recognition, in order to determine what word was intended by the speaker. Context-free speech recognition, by way of contrast, uses exact matches and some simple patterns in order to determine if certain words or phrases have been uttered. This makes context-free recognition particularly suited to command and control scenarios, while dictation is particularly suited to situations where we are simply attempting to translate the user's utterances into text. Dictation mode is sometimes better than context-free mode for non-game speech recognition, depending on how well the speech recognition engine installed on your OS has been trained to understand your speech patterns. Context-free mode is typically better for game mode. Moreover, the grammar used within the application can be extended to a more complex one

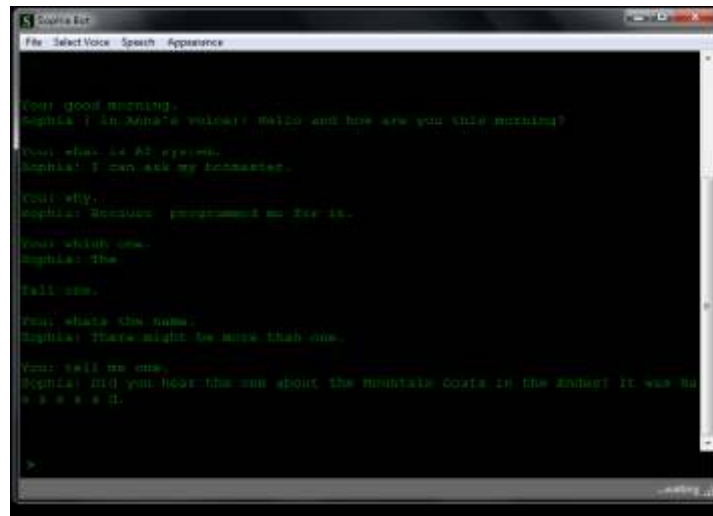


Fig 1.1 interface of chatbox

II SPEECH RECOGNITION PROCESS

After the training process, the user's spoken words will produce text; the accuracy of this will improve with further dictation and conscientious use of the correction procedure. With a well-trained system, around 95% of the words spoken could be correctly interpreted. The system can be trained to identify certain words and phrases and examine the user's standard documents in order to develop an accurate voice file for the individual.

However, there are many other factors that need to be considered in order to achieve a high recognition rate. There is no doubt that the software works and can liberate many learners, but the process can be far more time-consuming than first-time users may appreciate and the results can often be poor. This can be very demotivating, and many users give up at this stage. Quality support from someone who is able to show the user the most effective ways of using the software is essential.

When using speech recognition software, the user's expectations and the advertising on the box may well be far higher than what will realistically be achieved. You talk and it types can be achieved by some people only after a great deal of perseverance and hard work.

III SOME IMPORTANT TERMS

Following are a few of the basic terms and concepts that are fundamental to speech recognition. It is important to have a good understanding of these concepts when developing Voice XML applications.

1. UTTERANCES

When the user says something, this is known as an utterance. An utterance is any stream of speech between two periods of silence. Utterances are sent to the speech engine to be processed. Silence, in speech recognition, is almost as important as what is spoken, because silence delineates the start and end of an utterance. Here's how it works. The speech recognition engine is "listening" for speech input. When the engine detects audio input - in other words, a lack of silence -- the beginning of an utterance is signaled.

Similarly, when the engine detects a certain amount of silence following the audio, the end of the

utterance occurs. Utterances are sent to the speech engine to be processed. If the user doesn't say anything, the engine returns what is known as a silence timeout - an indication that there was no speech detected within the expected timeframe, and the application takes an appropriate action, such as reprompting the user for input. An utterance can be a single word, or it can contain multiple words (a phrase or a sentence)

2. PRONOUNSATION

The speech recognition engine uses all sorts of data, statistical models, and algorithms to convert spoken input into text. One piece of information that the speech recognition engine uses to process a word is its pronunciation, which represents what the speech engine thinks a word should sound like. Words can have multiple pronunciations associated with them.

3. GRAMMAR

As a Voice XML application developer, you must specify the words and phrases that users can say to your application. These words and phrases are defined to the speech recognition engine and are used in the recognition process. You can specify the valid words and phrases in a number of different ways, but in Voice XML, you do this by specifying a grammar. A grammar uses a particular syntax, or set of rules, to define the words and phrases that can be recognized by the engine. A grammar can be as simple as a list of words, or it can be flexible enough to allow such variability in what can be said that it approaches natural language capability

4. Accuracy

The performance of a speech recognition system is measurable. Perhaps the most widely used measurement is accuracy. It is typically a quantitative measurement and can be calculated in several ways. Arguably the most important measurement of accuracy is whether the desired end result occurred. This measurement is useful in validating application design. Another measurement of recognition accuracy is whether the engine recognized the utterance exactly as spoken.

II. CHATBOX FUNCTIONALITY

1. File : this is provided for saving the chatting information .
2. Select voice: this facility provides chatting with voice or without voice
3. Speech: this is provided the different type of voice selection
4. Appearance :- Appearance provides the different type text , font , foreground, background color selection.

III. ACTUAL INTERNAL WORKING:

Chatbox uses context free grammar for selecting proper answer from the production to the user . here production rule means query firing and grammar production means data base of chatbox. This is considered in AI as knowledge base.

Chat Box uses second thing is a Artificial intelligence concept called text to speech conversion. Actual System Design of text to speech conversion is not possible because of it has some drawback such

as different handwriting but here we overcome this drawback by using Microsoft Annas Speak tool. This tool is used by using some command base programming and main thing here we can use handwriting information.

CONCLUSION:

AI talking system is very useful for designing robot system as well as any Expert System that uses the voice command of user.

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