SPEECH INTERACTIVE WEB PAGE DESIGNING AND IMPLANTATION BASED ON AGENT

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ABSTRACT
According speech recognition and speech synthesis research work progressing, speech application in Internet is more and more widely used. Speech technology was used in Internet such as voice browser in English and other language, voice mail and speech interactive Web page etc. In this paper design and establishment of speech interactive HTTP Web page using Agent technology was presented, normal HTTP Web page function was expanded made it has speech interactive function. Speech interactive Web page reserved normal HTTP Web page function add speech interface, made it possible allowing people using speech access to the Internet. Accessing to the speech interactive Web paper can not only using normal GUI explore, but also can using PDA, Mobil phone and other device which haven’t keyboard. Using speech interactive Web page can release people concerning Information such as weather forecast, stock and traffic information etc, which can help user using speech acquire information.

1. INTRODUCTION
The Internet user group up rapidly nowadays, the information of the Internet is very rich. People can access Internet get nearly every kind of information, such as weather forecast, stock and traffic information, even free software and music. How to make user easy accessing Internet get useful information is very important work to study. In Internet most popular information was showed in HTTP, user access internet almost using traditional GUI browsers. According to portable equipment such as PDA and mobile phone used more popular, speech interface was a way to access Internet [1]. Speech recognition and Text to speech technology was used Internet in many ways, such as voice browsers [2]-[5], voice Mail and speech interactive Web pages. Microsoft® Agent is a set of programmable software services that supports the presentation of interactive animated characters within the Microsoft Windows® interface. Developers can use characters as interactive assistants to introduce, guide, entertain, or otherwise enhance their Web pages or applications in addition to the conventional use of windows, menus, and controls [6][7]. Microsoft Agent enables software developers and Web authors to incorporate a new form of user interaction, known as conversational interfaces, that leverages natural aspects of human social communication. In addition to mouse and keyboard input, Microsoft Agent includes optional support for speech recognition so applications can respond to voice commands. Characters can respond using synthesized speech, recorded audio, or text in a cartoon word balloon[7].

The conversational interface approach facilitated by the Microsoft Agent services does not replace conventional graphical user interface (GUI) design. Instead, character interaction can be easily blended with the conventional interface components such as windows, menus, and controls to extend and enhance user application’s interface [7].

2. INSTALLATION OF MICROSOFT AGENT
Microsoft Agent includes an ActiveX® control that makes its services accessible to programming languages that support ActiveX, the server program (Agentsvr.exe) was run under Win95/98/NT platform. Client program can be use VB, C++, Delphi, VFP, PB, in HTML file Visual Script, Java Script can be used also [6][7]. Install Microsoft Agent procedure as follow.

- Install Agent Core Msagent.exe.
- Install Lernout & Hauspie TruVoice Text-to-Speech Engine (which is English version) tv_enua.exe.
- Install Microsoft Command and Control Speech Engine (English speech recognition engine) Actenc.exe.
- Install agent animated characters file. The above software can be download from [7].

3. SPEECH INTERACTIVE WEB PAGE DESIGN AND IMPLANTATION
3.1 VBScript programming
Design speech interactive Web pages VBScript can be used, so as JavaScript do. VBScript was IE supported programming language. If some other browser was used, it must support VBScript 2.0 or higher. VBScript 2.0 can be download from Microsoft VBScript Web site.

Microsoft Agent For VBScript using HTML <SCRIPT> tag. Using <OBJECT> tag specify accessing the program interface. Such as:

```vbscript
agent._object_.Method parameter, [parameter]
agent._object_.Property = value
Sub agent_event (ByVal parameter[,ByVal parameter])
  statements…
End Sub
```

In speech interactive Web pages VBScript can be used. For example;

```html
<SCRIPT LANGUAGE=VBScript For=agent
  Event=event([parameter[,parameter]])>
```
3.2 Web page speech function

Speech function in Web pages include speech input and output. Speech input can call Microsoft Speech API (SAPI) Listen, calling different speech recognition software using SRIModelID. Speech output call Speaks, for different (TTS) engine using TSModelID. For different Language using LanguageID. Language ID was showed in Table 1. Language ID Syntax as follow:
agent.Characters(“CharacterID”).LanguageID [ = LanguageID]

3.3 Control and using Agent

Microsoft Agent have many animated characters, such as Genie, Merlin, Peedy, Robby. These characters can speak, via a text-to-speech engine or recorded audio, and even accept spoken voice commands. Agent animated characters supports many animations. Microsoft Agent function was showed in Fig1.

3.4 An example of speech interactive Web page design

The following example illustrates how to design speech interactive Web pages.

3.4.1 Specifying Agent

<OBJECT width=0 height=0 classid="clsid:D45FD31B-5C6E-11D1-9EC1-00C04FD7081F" id=AgentCtl> </OBJECT>

'Specifying agent

<OBJECT width=0 height=0 CLASSID="clsid:B8F2846E-CE36-11D0-AC83-00C04FD97575" id=L&HTruVoiceDownload> </OBJECT>

'Specifying (TTS)

<OBJECT width=0 height=0 CLASSID="CLSID:161FA781-A52C-11D0-8D7C-00A0C9034A7E"
CODEBASE="#VERSION=4,0,0,0" id =MicrosoftSpeechRecognitionDownload> </OBJECT>

'Specifying speechRecognition

3.4.2 Specifying use VBScript

<script LANGUAGE="VBScript">

3.4.3 Specifying variable

Dim Merlin
Dim LoadRequest
Dim SpeechInputRequest
Dim SpeakingDoneRequest …

3.4.4 Load agent and Specifying LanguageID

Set LoadRequest = AgentCtl.Characters.Load ("char1", "merlin.acs")
Set Merlin = AgentCtl.Characters ("char1")

Table 1

Merlin.LanguageID = &H0409

3.4.5 Speech interactive Web pages function implementation

Each particular speech interactive Web page have their own function. That depended on what designer want to implement. The above example speech interactive page was showed in Fig 2.

4. CONCLUSION

In this paper a method of speech interactive Web page designed and implementation was introduced. An example of Speech interactive Web based on Agent technology was showed. Speech interactive Web page add speech interactive function to traditional HTTP Web page, people can use speech access to the Internet and get speech output feedback. Accessing speech interactive Web page can not only using normal GUI explore, but also can using PDA, Mobil phone and other device which haven’t keyboard. Using speech interactive Web page can release people concerning Information such as weather forecast, stock and traffic information etc, which can help user using speech acquire information.

5. CONTACT

If you have any questions about our work, please feel free to contact us at:

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6. REFERENCES

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<tr>
<th>Language Tag</th>
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</tr>
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<td>&amp;H042D Japanese</td>
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Welcome to Dong Lin's Agent Test Web Site
欢迎光临董林的语音交互网页

Select command Style...语音控制命令

- Dong Lin's homepage 访问董林的个人网页
- NJTU homepage 访问北方交通大学网页
- Go Forward 浏览器前进
- Go Back 浏览器后退
- Help 帮助
- Link 链接

Let me tell you how you can do your command.