RAG Windows Client – NSF AlwaysOn Build - 10/15/10

I. Installation & Configuration

Unzip all files into a single directory – all files must be kept in the same directory as the exe. The "GeneralClient.exe.config" file is a text XML file that can be edited prior to client launch with configuration parameters. Most important are:

- Hostname, Port – specify TCP/IP location of the server to connect to upon startup. These default to localhost/6969 to talk to the Test Server (below).
- Voice – the name of the TTS voice to use (MSAPI 5.1 or built-ins in Vista or later). If this is left blank the system's default voice will be used.

II. Test Server

The client is distributed with a very simple test server. To launch the server, run "InputServer.bat". This presents a 1-line text box into which client commands can be entered and sent to the client by pushing the SEND button. Messages to and from the client are echoed in the console window.

III. Client/Server Protocol

1. All messages to and from the client are carriage-return-delimited (single line) XML.

2. Upon starting, the client will send the server a message of the form "<USER_LOGIN …/>" (parameters can be ignored).

3. Following this, the client-server interaction generally proceeds by the server sending the client a PERFORM command, and the client responding with a PERFORM_COMPLETE message once execution is finished. The exception to this is that the server can send a MENU command to configure user input options on the client, and when the user specifies an input, the USER_INPUT message is immediately (asynchronously) sent to the server.

IV. Commands

- PerformBody ::= InterfaceCommand | AgentCommand
- InterfaceCommand ::= DelayCommand | CameraCommand | MenuCommand
- DelayCommand ::= <DELAY MS=ms />   *-delay execution*
- CameraCommand ::= <CAMERA ZOOM=0..1/>
  -change camera shot, 0=wide, 1=closeup
- MenuCommand ::= <MENU>MenuItem* </MENU>
- MenuItem ::= <ITEM> text </ITEM>   *- For multiple choice menu.*
- AgentCommand ::= NVB | Speech
- Speech ::= <SPEECH> { word | SNVB }* </SPEECH>   *-speech synchronized behavior*
- NVB ::= PostureCommand | GazeCommand | HeadnodCommand | FaceCommand | DisplayCommand | SNVB
- SNVB ::= EyebrowCommand | GestureCommand

- PostureCommand ::= <POSTURE/>   *-posture shift*
- GazeCommand ::= <GAZE DIR={AWAY|TOWARDS}/>
- HeadnodCommand ::= <HEADNOD/>
- FaceCommand ::= <FACE EXPR="expr" />   *- expr ::= WARM | SMILE | CONCERN*
- DisplayCommand ::= <DISPLAY CMD={SHOW|HIDE}/> *- Agent walk on / walk off.*
- EyebrowCommand ::= <EYEBROWS DIR={UP|DOWN}/>
- GestureCommand ::= <GESTURE HAND={L|R} CMD=GestureType />

  - **Left hand gestures:**
    - RELAX -- Hand at side.
    - READY -- Hand in gesture space.
    - BEAT -- Beat gesture (co-articulated onto any position).
    - CONTRAST -- Contrast gesture.
    - LEFT -- Deictic left.
    - YOU -- Deictic at user.
    - ME -- Deictic at agent (self).
    - OK -- Emblematic "thumbs up" gesture.
  - **Right hand gestures:**
    - RELAX -- Hand at side.
    - READY -- Hand in gesture space.
    - BEAT -- Beat gesture (from any position).
    - CONTRAST -- Contrast gesture.

V. Examples

- Walk on (if not already on screen), closeup shot, say Hi.

  <PERFORM><CAMERA ZOOM="1"/><speech>hi</speech></PERFORM>
- Say "Hi Bob. What's shaking?" with eyebrow emphases on the second utterance.

  <PERFORM><SPEECH>Hi Bob. <EYEBROWS DIR="UP"/>What's shaking?
      <EYEBROWS DIR="DOWN"/></SPEECH></PERFORM>
- Do a posture shift.

  <PERFORM><POSTURE/></PERFORM>
- Do a head nod.

  <PERFORM><HEADNOD/></PERFORM>
- Gaze away from user, pause, gaze back.

  <PERFORM><GAZE DIR="AWAY"/><DELAY MS="1000"/><GAZE DIR="TOWARDS"/></PERFORM>
- Posture shift, speech with synchronized brow emphasis.

  <PERFORM><POSTURE/><SPEECH>You know, i think the Yankees <EYEBROWS DIR="UP"/>
          Blow flaming juicy chunks <EYEBROWS DIR="down"/>. what do you think?
      </SPEECH></PERFORM>
- Change facial expression

  <PERFORM><FACE EXPR="WARM"/></PERFORM>

  <PERFORM><FACE EXPR="SMILE"/></PERFORM>

  <PERFORM><FACE EXPR="CONCERN"/></PERFORM>

- Speech with synchronized beat gesture.

  ```
  <PERFORM><SPEECH>That was <GESTURE HAND="L" CMD="BEAT"/>
          really great!</SPEECH></PERFORM>
  ```

- A more typical utterance:

```
<PERFORM><gaze dir="AWAY"/><delay ms="500"/><gaze dir="TOWARDS/><speech>It looks like you
are going to be leaving the <EYEBROWS DIR="UP"/><gesture hand="L" cmd="BEAT"/>hospital
<EYEBROWS DIR="DOWN"/>this afternoon , so I brought some <EYEBROWS DIR="UP"/><gesture
hand="L" cmd="BEAT"/>information <EYEBROWS DIR="DOWN"/>for you . </speech><gesture hand="R"
cmd="RELAX"/><gesture hand="L" cmd="RELAX"/></PERFORM>
```