Main Features of GuideView

- Complex guidelines are broken into simple steps in a process flow.
- Instructs for each step are presented in multiple modes:
  - Text
  - Voice and sound
  - Pictures
  - Full-motion video
  - Live action (with annotations)
  - Animation
- GuideView interacts with the user in two modes:
  - Mouse clicks
  - Voice Navigation: both hands can be free to assist the patient.
- GuideView can interact with medical sensors using Bluetooth (wireless) or wired connections.
- Automatically traverses guideline pathways depending on data values received.
- Saves time and improves accuracy.
- GuideView is for desktop platforms with consistent look-and-feel.
- Over the web on Windows and Macintosh computers running Internet Explorer
- Stand-alone on Windows computers
- On Windows Mobile PDAs (Pocket PCs)

GuideView Design Goals

- Reduce Complexity
  - Each process step is a simple task that can be completed even by those with minimal medical training.
- Decrease Cognitive Load
  - At each step only a small (5 maximum) choices to next step.
- Support backtracking
  - No choice is final. Can always return easily to a previous step and follow different path.
- Enable repetition
  - Provides instructions for any step as often as desired.
- Support modularity and re-usability of guidelines:
  - Guidelines can be developed in small modules.
  - Modules can be chained and nested as needed to create complex protocols.
- Reinforce learning by providing multiple instructional modes:
  - Each step is presented using multiple media, text, voice, and visual aids.
- Look-and-feel as similar as possible over multiple platforms.
- Achieve conformity with Flash technology from Macromedia.
- Support mobility
  - GuideView may need to be used by mobile professionals, either within a space habitat or on Earth.
- Separation of content and presentation:
  - Content saved as XML.

GuideView supports mobility

- User interface identical to the desktop version.
- Full-motion video and voice output available.
- Images and form factor very desirable for mobile professionals and astronauts.
- Voice navigation is being developed.

Future Work

- Interface GuideView with electronic health record systems.
- Improve voice navigation.
- Add expert mode for use by physicians.
- Develop extensive module library with management and supporting services.
- Enable connectivity with medical devices and sensors.
- Explore engineering applications for GuideView technology.

Results of Usability Study

- Voice instructions rated useful to indispensable by 100% of subjects.
- Video was also rated highly.
- Task Load Index significantly higher (p < 0.02) with voice navigation than without.
- Reason: Microphone and recognition software were oversensitive and interpreted external noises as commands.

References


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