Accessibility: a case of "us and them"?

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Accessibility: A Case of “Us and Them”?

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Outline

Context
  Then
  Now
  Future

Rendering: Defining the User’s Experience
  Signals, Symbols and Earcons
  Auditory Icons and Implicit Accessibility

Capability and Multimodality

3D Structure Representation and Modification
  Overview
  Not Just Games

Final Thoughts
  User Survey
  Further Work
  Conclusions
  Acknowledgements

References
The Past of Accessible Gaming

▶ (Paper presented an overview of our work; this is more technical)
▶ Many individuals and some small companies started developing accessible games for disabled people
▶ Suddenly blind people were no longer limited to one genre (Interactive Fiction)
▶ Most of the games were conversions of puzzles or classic arcade games
▶ Some developers have been more original
▶ **Drawback:** Segregation
The Present of Accessible Gaming

Ethos of the AGRIP Project

▶ Provide access to not only mainstream games, but their surrounding online community and development tools
▶ Give people Freedom to use and modify the game, support infrastructure and tools

▶ AudioQuake
  ▶ An “Accessibility Layer” for Quake (id Software)
  ▶ A system for playing Internet multiplayer games
  ▶ A platform for programming modifications
  ▶ Only possible due to Open Source nature
  ▶ Provides and promotes inclusion

▶ AGDev and other developments
The Future of Accessible Gaming

- AGRIP Developments: Level Design
- Audiogames and Accessible games gain weight in industry
  - **Definition:** “accessible games” vs. “audiogames”
  - John Carmack’s Keynote point
  - “Implicit Accessibility”
  - Potential mobile market
  - Work of IGDA, AudioGames.net, AGDev and others
- Education and Games get together
  - EA and NESTA study on games in education [NESTA and EA, 2005]
  - Potential to augment existing practises and assist in teaching
- Research
Rendering: Defining the User’s Experience

- Signals, Symbols and Earcons
- Auditory Icons and Implicit Accessibility
- Capability and Multimodality
Earcons [Brewster, 1994] are used in AudioQuake

**Definition:** Structured sounds, often obeying musical conventions, that are designed to alert the user to an object or event. They do not “sound like” their referents.

- Time-efficiency
- Well-defined structure aids recognition

**Goal:** Fast-paced gameplay

**Sound design techniques used to achieve this**

- Consistency within referent types
- Variations across referent types
- Natural reference points embedded in the sounds (as in [Holland et al., 2002])
An opposing rendering style

- Auditory Icons
  - **Definition:** Sounds that map intuitively to the real-world concepts/items they refer to [Mynatt, 1994]
  - Use of special and spacial effects to separate such sounds from in-game events

Increased fun through immersion

- Play is more intuitive due to believable audio atmosphere [Röber and Masuch, 2004]
- Information supplied by subtle environmental effects – e.g. wind direction in Shades of Doom [GMA Games, 2001]
Reinforcement in other modalities of the primary rendering medium (usually graphics) can...
  - provide some implicit error-correction [Suhm et al., 2001]
  - aid cognition [Röber and Masuch, 2004]
  - increase immersion and, therefore, enjoyment [Velleman et al., 2004]

Capability modelling technique
  - Model users based on what they can do, in conjunction with properties of device.
  - Choose appropriate rendering method based on these properties.
  - (More in paper)
Overview

Not Just Games
3D environments and Collaborative Virtual Environments (CVEs) are of increasing importance in society.

Techniques described in this paper and other literature go a long way to making these accessible.

Little work has been done on allowing blind/vision-impaired people to create 3D environments.

A preliminary architecture of an adaptable level description and editing system has been developed.
A major goal of the AGRIP project, as with other literature, is to develop generally applicable techniques to improve the experience for all users and to improve accessibility in other areas.

Permeation of game-like technologies in society; education and the workplace

Importance of ensuring such technology is as accessible as possible to as many potential users as possible before it becomes mainstream. Problems of existing work environment [Brock et al., 2003] and collaborative navigation ([Yang and Olson, 2002]) is an area of ongoing research for AGRIP.
Final Thoughts

- User Survey
- Further Work
- Conclusions
This survey covered 20 users of AudioQuake.
Further Work

- Improve existing techniques
- Ongoing: generalisation...
  - Application to other types of user
  - Application to academic and other non-game material [Atkinson et al., 2006]
  - Increasing inclusion in education
- Accessible map generation and validation
Conclusions

▶ What accessible (and audio) games are
▶ How mainstream (even time-critical) games may be rendered in an accessible way
▶ Different rendering styles and how they may be of use to a wider range of users
▶ Experience gained from other literature, user feedback
▶ Our ongoing work and ideas for future work
▶ Potential benefits for other users and in other areas
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- id Software
- The Quake & QuakeWorld community
- The AGRIP community
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Thanks for listening!
Any Questions?

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