Making the mainstream accessible: more than a game

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Making the Mainstream Accessible
More Than A Game

Matthew Tylee Atkinson
<M.T.Atkinson@lboro.ac.uk>
http://www.agrip.org.uk/

Research School of Informatics
Department of Computer Science
Loughborough University

27th June 2006
Outline

Context
   Then
   Now
   Future

Online Interaction
   Global Navigation
   Collaboration
   Web-based Communities
   Meaningful Competition?

Development Tools: Educational Integration?

Conclusions
   Further Work
   Conclusions
   Acknowledgements

References
The Past of Accessible Gaming

This talk concentrates on sight loss but could be applied to other disabilities.

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.
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> 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
Ethos of the AGRIP Project

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The Future of Accessible Gaming

Definition: “accessible games” vs. “audiogames”

Potential mobile market

Work of IGDA, AudioGames.net, AGDev and others

EA and NESTA study on games in education [NESTA and EA, 2005]

Potential to augment existing practices and assist in teaching
AGRIP Developments
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- AGRIP Developments
  - “Implicit Accessibility”
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Context Future

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“ Implicit Accessibility”

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Global Information
Online Interaction

- Global Information
- Collaboration
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- Global Information
- Collaboration
- Web-based Communities
Presenting in Parallel with Local Navigation
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AudioQuake’s approach & Multimodality
Presenting in Parallel with Local Navigation

Abstract concepts and goals vs. Game-world objects

Narrative techniques

Objects, Characters guide the player used in Half-Life [Valve Software, 1998] and Monkey Business [ESP Softworks, 2001]

not suitable for non-linear (i.e. multiplayer) games

Abstract techniques

Differentiates "real" objects and goals

Implicit landmarking, similar to place naming used in Unreal Tournament [Epic Games, 2004] and others
Abstract concepts and goals vs. Game-world objects
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Our Approach & Multimodality

AudioQuake approach

Waypoint markers

Different audio environments

Areas tagged with names

So far, users like different environments and tagging most

Multimodality

Other means than audio and video may be used

Examples include location-based games such as Demor [Velleman et al., 2004] and haptic feedback provided by the TiM project [Archambault and Burger, 2001]

AudioQuake and Braille displays
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Communication
Collaboration

- Communication
- Positional Information and Strategy
Communication

Traditional text-based messages... pose a number of problems
▶ Stops player being able to move (applicable to other games)
▶ Use of Text-to-Speech further overloads the sound "channel" of presenting information

Potential solutions
▶ In-play shortcut keys to quickly review important messages
▶ Use of VoIP for faster, less invasive (to gameplay) communication
▶ Braille display, with techniques such as those used in BIRC [Hampel et al., 1999]
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Positional Information and Strategy

Local strategic information is presented

Use of RADAR and similar metaphors [Atkinson et al., 2006]

Overall strategic information not presented

Inherent problem in first-person games (as pointed out by [Yang and Olson, 2002])

More pronounced for disabled people

Current overview techniques have no accessible counterpart (discounting the use of external devices, which could be problematic)

An area for future work
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Web-Based Communities

Often the websites of gaming communities are not accessible:

- Non-compliance with accessibility standards (e.g. use of flash, tables for layout, graphics with no alternative text)
- Attitudes towards disabled gamers (if any!)

An online extension to AudioQuake was developed:

This allows stats-tracking in a similar way to sites for other mainstream games.
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Meaningful Competition?

Overall there is a long way to go.

In simple Deathmatch games, results have been good, e.g. 8 (advanced blind player) vs. 10 (sighted player) "frags" – only a 20% difference in scores!

Performance of blind gamers was let down by implementation-specific technical limitations:

- Input Speed
- Fast Output Cognition

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Programming jobs no longer as accessible as they were.

IDEs can be inaccessible [Sánchez and Baloian, 2005].

Whole metaphors for programming can be inaccessible [Siegfried, 2002].

Standard techniques of teaching programming not as accessible as before.

Meanwhile, sighted people can learn in a more entertaining way from earlier ages.

AudioQuake represents an even playingfield for this style of teaching programming.

Feedback from ICC 2005.
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Feedback from ICC 2005
Further Work

- Improve existing techniques
- Generalisation & relation to other current research
- Accessible map editing
Further Work

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User Survey

This small survey covered 18 users of AudioQuake.

Conclusions

Further Work

17 of 24
This small survey covered 18 users of AudioQuake.
Conclusions

What accessible (and audio) games are

How multiplayer accessibility in particular can be realised

Non-game aspects

Educational uses
What accessible (and audio) games are
Conclusions

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- The AGRIP community
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- The AGRIP community
- The Grundy Educational Trust
Thanks for listening!
Any Questions?


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