Collaborative M-learning using Agents and Virtual Reality

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Objectives

- To provide an interactive and intelligent e-learning system that can be extended to mobile devices
- Evaluate the resulting system

How?

- Integrate ABITS and CLEV-R
Collaborative Learning Environment with Virtual Reality

Benefits:
- Immersive
- Users feel a sense of belonging
- Supports collaboration and group work
- Multimedia features
- Interaction with the environment is intuitive
Features of CLEV-R

- 3D virtual university
  - Lecture rooms and group meeting rooms
  - Informal chat areas
- Users are represented by avatars
- Adaptive interface
- Communication:
  - Text chat
  - Audio chat
  - Gestures
Features of CLEV-R

- Two types of learning:
  - Synchronous
  - Asynchronous

- Presentation board, notice boards and shared whiteboards

- Video/Audio/Images

- Client/Server architecture
ABITS

- **Agent-Based Intelligent Tutoring System**

- Delivers course material tailored to a user’s preferences, knowledge and learning style.
Features of ABITS

- Learning methods:
  - Personalised and customised online lectures
  - Personal “agent” buddy
  - “Intelligent” quiz

- Appraisal
  - Traditional approach – Assignments, Projects, Exam
  - Agent assistant.

- Relationship
  - One to virtual one & always available.
Features of ABITS

- **Student**
  - Personalised and shared content.
  - One central place to access many resources.

- **Teacher**
  - Automatic and secure materials release.
  - Feedback mechanism.
  - Validate techniques/methodologies.

- **University**
  - Offer courses to a broader range of people
  - No new overhead.

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ABITS Interface
The combined system

- An intelligent tutoring system that provides an innovative and immersive environment in which students can learn, collaborate and socialise.
Features of the mobile application

- “Anytime, anywhere” access to course material
- Asynchronous learning:
  - Browse course material
  - Take Quizzes
- Synchronous learning:
  - Attend lectures
  - Attend group meetings
- Communication
  - Text chat
  - E-mail
Performance issues

- Limited screen size and memory
- Simplified graphical component:
  - Display minimal amount of the VRML world
  - Users represented by simple shapes instead of avatars
- Content
  - Simplified Graphical User Interface (GUI)
  - Less options and resources available to the users
  - Content restricted to relevant file formats
Mobile Interface
Current & Future work

- Fully implement CLEV-R & ABITS
- Integrate the two systems
- Further investigate optimising techniques
- Develop a GUI for the mobile application
- Evaluate the system

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