ARiSE -
Augmented Reality in
School Environments

Augmentation in a biology class

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Overview

Technological advances in the field of information and communication technologies enable innovative ways to mediate knowledge. Among them, Augmented Reality (AR) becomes increasingly a field of interest.

AR enhances the view of the real world by augmenting the real environment with virtual objects to provide additional information to users. Thereby it holds the potential to impact teaching, learning and understanding key issues in different knowledge areas.

Integrated in e-learning systems, AR will provide innovative ways to transfer knowledge in education. This is the purpose of the project Augmented Reality in School Environments (ARiSE). A new technology will be developed, the Augmented Reality Teaching Platform (ARTP) by adapting existing AR technology for museums to the needs of students in primary and secondary school classes.

Aim

The project aims at integrating an AR teaching platform into the everyday environment of teachers and students, displaying audiovisual and multimedia content in line with the needs identified by education experts and researchers in the relevant areas.

Using 3D presentations and user-friendly interaction techniques will lead to a better understanding of scientific and cultural content coupled with high student motivation. The students will have the possibility to interact as a team with the virtual objects in a virtual shared space provided by an AR display system and thereby they will perform learning by doing instead of learning by reading or listening.

The new technology will promote team work, collaboration between classes in the same school or even remote col-laboration between schools in different countries in a learner-centered approach.

 A major part of the project work is dedicated to the development of tools necessary for the easy production of content by non-AR-experts, to facilitate deployment in different countries of Europe at a moderate effort.

Application

The ARTP will raise teaching technologies for basic, middle and high schools to a new level of possibilities. The platform, allowing students to interact with the teaching material in 3D and concurrently supporting a team-oriented approach, will raise the level of understanding of complex processes.
While acquiring scientific and cultural knowledge, important soft skills like team work and presentation skills will be trained as well.
The ARTP will be a highly flexible, robust and well affordable base platform consisting of a display system and software.

The Spinnstube®, a modular and scalable AR display system, currently under construction as part of the project, will serve as the display technology for the ARTP.
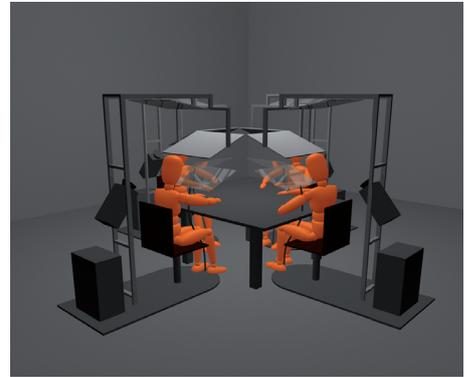
The ARiSE consortium comprises experts from different areas of information technology, but also expertise in didactics and pedagogy such as schools, which provide opportunities for testing the developed platform in class. School scenarios - including process visualisation, guided construction, and remote and telepresence - will be developed and tested by several classes in different European countries.

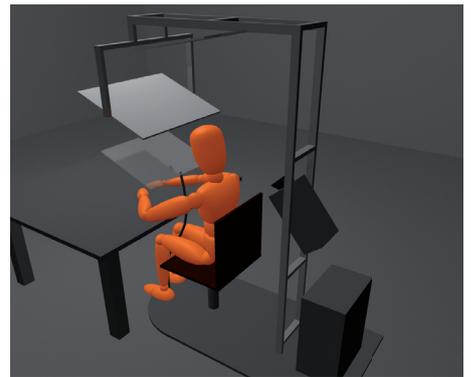3D-Model of a group of students working collaboratively on a topic.

Partners

Siauliai University, Lithuania
AcrossLimits, Malta
ICI, Romania
CTU Prague, Czech Republic
Juventa School, Lithuania
Freundeskreis RAMA, Germany

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3D-Model of a single display system.