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Fraunhofer Institut
Intelligente Analyse- und
Informationssysteme

ARiSE

Augmented Reality in
School Environments

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The Challenge

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 additio-
nal 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 into education. This is the
purpose of the project Augmented
Reality in School Environments (ARiSE).
A new technology has been developed,
the Augmented Reality Teaching Plat-
form (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 the
ARTP into the everyday environment
of teachers and students, displaying
audiovisual and multimedia content in
line with the needs identified by educa-
tion experts and researchers in the
relevant areas.

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

The new technology promotes team
work, collaboration between classes
in the same school, or even remote
collaboration between schools in dif-
ferent 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.
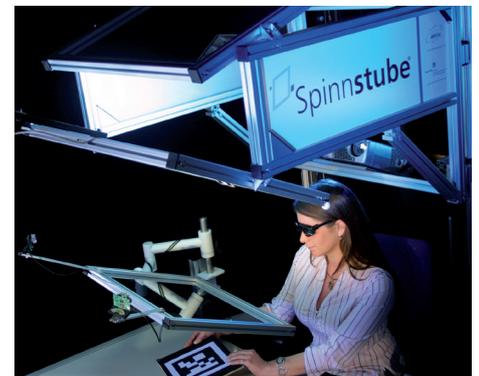
Application

The ARTP will raise teaching technolo-
gies for basic, middle, and high schools
to a new level. The platform, allowing
students to interact with the teaching
material in 3D and concurrently sup-
porting a team-oriented approach,

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Spinnstube® in a biology class
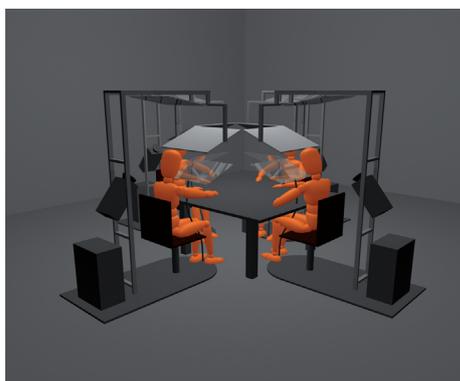
Spinnstube® with a group of students working collaboratively on a topic.

will raise the level of understanding of complex processes.While acquiring scientific and cultural knowledge, important soft skills like team work and presentation skills can be trained as well.

The ARTP is a highly flexible, robust and well affordable base platform consisting of a display system and related software. The Spinnstube®, a modular and scal-able AR display system, has been deve-loped as part of the project. It serves 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.

Partners

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

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