

## Teleclassing

Immersive distance learning

### Abstract

*Teleclassing is an experimental project for distance learning in an immersive environment. The participants need to be absorbed in the Teleclassing environment and a positive user experience is essential. This is one of the technical challenges. Moreover, we will regard the project as succeeded if good audio and video quality and interactivity can be assured with a robust network architecture.*

### Telepresence ...

Recently, different Telepresence solutions have emerged on the market, aimed at corporate environments. These solutions enable people, located at various Telepresence locations, to have a meeting experience which closely resembles face-to-face contact. It enables conducting fast, efficient and effective meetings between teams distributed over various locations in the world, while keeping all verbal and non-verbal communication means. Such systems have a strong impact on the way companies work in a global economy.



### ... in an educational setting

In the Teleclassing project the industrial partners and research groups investigate how the Telepresence concept can be applied to auditoria and classrooms for distance learning. The aim is a situation where the teacher can give his lecture from one location to one or more distant classrooms, while continuous and direct interaction is possible between teacher and students as well as between the students located at different classrooms. For these spatially larger and more complex environments the audiovisual setup needed to minimize the feeling of being located in different environments is investigated. The network architecture required to achieve this goal will be defined and a list will be made of cooperative tools to support and improve the distance learning.

### Interdisciplinary research

The Teleclassing research will show the important factors (audio, video, interaction) that create this perception of a real-life experience and tell us which architecture is needed to build a Teleclass. Consequently, this innovation project requires a multidimensional, interdisciplinary approach with significant efforts on both the users and usability axes as on the technological axes.

Important innovative components in this project include the application and design of microphone array technology, high resolution 2D/3D content and the accompanying visualization and ICT infrastructure. Through user research and practical use cases, a definition of the user's needs and expectations concerning an immersive environment will be given for each of these technologies. The applicability in an educational context of business oriented applications from the CSCW (Computer Supported Cooperative Work) domain, also called Groupware, and collaborative applications such as video conferencing will also be investigated.

Special attention will be given to the technical and user oriented demands on the interior design and the usability aspects of a Teleclassing environment. Through a realistic proof-of-concept setup the results of the project will be evaluated.

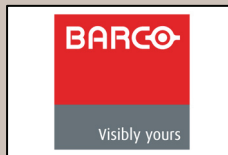
## Applications



Although the first aim of this project is to create an immersive environment for teleclassing, spin-off to several other application domains is possible. For example, production houses are often confronted with problems while recording audio and video, requiring time-consuming adaptations to the acoustics and lighting of the studios. Frequently changing settings and directors often prevent an ideal placement of microphones to ensure the best audio quality. For outdoor recordings (e.g. soccer games) where the acoustics

cannot be adjusted, the problem is even harder to solve with state-of-the-art equipment. The voice of the reporter is often lost in the background noise generated by the public. The techniques investigated in the Teleclassing project can provide a solution for these problems. The results of this project can also be applied in other high-end markets for presentation, such as CAD/CAM, automotive design, oil and gas exploitation, scientific computing and visualization.

### In cooperation with



### IBBT Research groups

KULeuven – CUO  
 UHasselt – EDM  
 VUB – ETRO  
 UGent – IBCN  
 UGent – MICT  
 UGent – MMLab  
 VUB – SMIT

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