

Overview

The augmented reality learning system is an effective key to the overall understanding of the lectured content, as it allows course participants to interactively access, view, enlarge or otherwise process the displayed data.

The interaction evokes increased attention and a naturally growing curiosity to explore the details, which the participant learns and at the same time experiences through the depicted holograms - this evokes positive feelings.

Implementation

As part of our educational activities, we strive to achieve the maximum concentration of participants on the content of the course, which aims for the participant to acquire new digital skills. The service is primarily intended for SMEs in the transformation of digitized tools into a manufacturing company. The services provide clear interactive and educational tools for the successful implementation of augmented reality as a working tool in industrial production, which should lead to increased productivity and cost optimization. All these are very essential for SMEs in development.

The service provides direct interaction of the subscriber with the content via HoloLens holographic glasses. The overall set of devices consists of the observed object connected via a sensor to the server, the HDM HoloLens display device, and the observer himself. The device is connected to the controlling and data acquiring unit that collects data and stores them in the cloud where they are subsequently analyzed and can be displayed in smart glasses. This setup also allows the user to control some parameters of the device via smart glasses. In fact, this is a simple model of IoT technology.

Usage

Interactive augmented reality is intuitive yet requires control of basic gestures for proper control of digital content. To use augmented reality as a working and supporting tool, it is necessary to understand the basic principles of sensing the movement of gestures through sensors that are part of the HDM device.

The rules for the control of digital content via voice and movement are an essential part of the service provided.

Possible implementation scenarios:

1) *presentation module*

offers opportunities to increase sales support for goods and services, to support promotion and marketing as well as the remote presentation of the company through the augmented reality,

2) *maintenance and training module*

enables the use of augmented reality as a working tool in the maintenance of machinery and equipment in a company that is supported by educational training of employees to increase employee productivity and control in the workplace,

3) *live data module*

a service supporting the acquisition of data from machinery and equipment in real time for the correction of energy consumption in halls or in enterprises recorded in graphs with data collection per one second.

Results

The main result is the acquisition of basic digital skills for the use of augmented reality in the company in three areas of possible implementation:

- through static data that allow information about the company / **machines** / employees to be added to the real environment,
- through interactivity with the displayed content and its processing by proper use for the maintenance purposes and training in the real environment,
- for obtaining and displaying the real data from energy meters for monitoring of the energy consumption in the company and its subsequent optimization in the real time.



This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 767498.