IGTE

Institute of Fundamentals and
Theory in Electrical Engineering

ife

Institute of Electronics

TU Graz

Masterthesis

Development of an AR/VR environment for teaching

Motivation

The Institute of Fundamentals and Theory in Electrical Engineering uses augmented reality (AR) for teaching purposes, while the Institute of Electronics utilizes virtual reality (VR) for laboratory experiments. Within this project, we want to create a unified framework that shall be applied to two special laboratory experiments – magnetic levitation and magnetic shielding.

Tasks

The goal of this thesis is to develop a AR/VR framework in Unity based on already existing developments at IFE and IGTE. A common AR/VR core shall be used to create interactive laboratory experiments for teaching purposes. For AR, virtual inputs on the screen like distance, magnitude shall be used for interactivity, while a headset with motion capture shall be used for VR. The output should then be rendered in the adequate AR or VR scene. The framework should be able to handle analytic and precomputed FEM simulations to display physical fields.
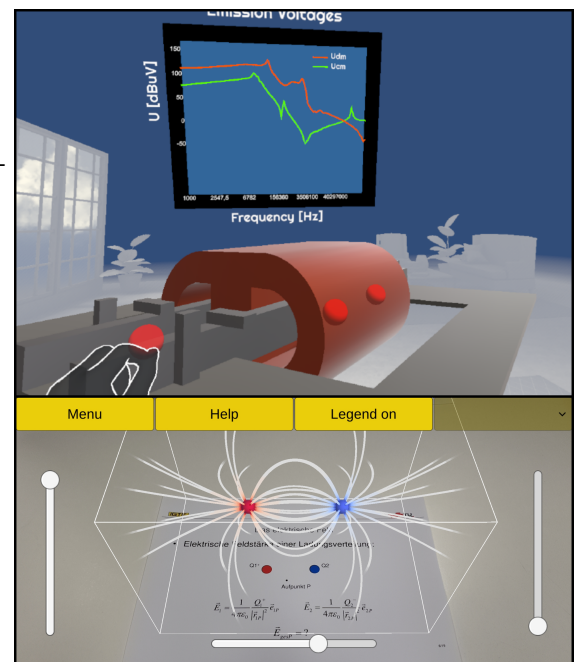
Organisation

- Language: English
- Start: November 2024
- Prerequisites: Fundamental knowledge of electrodynamics, programming (C# knowledge is beneficial)

Contact/Supervisor

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VR/AR application examples.