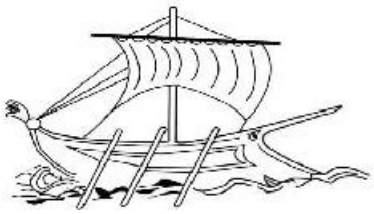

Piraeus University
Of Applied Sciences
Department of Electronics Engineering

Augmented Reality: Incident Recording Application

Degree Thesis

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Abstract

In the scope of this thesis, Extended Reality technologies are researched and studied upon, as well as any software and hardware packages that are supported by each technology. The aim is to make an Augmented Reality application, in which the capability is given to record an environment, where an event/incident occurred, and extend the environment with further information regarding its characteristics. The environment will be reviewable through a smartphone at any time and at any place by immersing the user in the recorded area. Project Tango is the core platform used to make this feature realistic and is managed through its API in the game engine of Unity3D. Project Tango, with the help of sensors included in Tango-enabled devices, follows the movement of the device effectively tracking the user's motion, learns the device's area through visual features and lastly, is able to perceive the distance of objects from the sensor on the fly. Further features of the application include the sharing of recorded environments with a cloud storage service, the use of an external omnidirectional camera and the use of maps to display the layout of outdoor environments.

Keywords

Extended Reality, Augmented Reality, application, incident recording, Project Tango, motion tracking, area learning, depth perception