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Fine Grained Location Using Mobile Augmented Reality

Abstract

With the growing acceptance of multimedia and the Internet, mobile phones are becoming multi-purpose information appliances, incorporating everyday services such as telephone, fax, answering machine, television, chat, games, internet browsing, GPS navigation etc. These mobile devices can now replace the functions of the head mounted displays making augmented reality applications accessible to users on their mobile phone. In this thesis we investigate using an Android phone to augment reality. The target use case is displaying cables and pipes embedded inside a wall on the real-time image of the wall.

This thesis shows how to integrate 3-D virtual objects into a 3-D real environment in real time. It describes the visualization and planning at different places in a home or offices. We use Qualcomm's Vuforia-Augmented Reality SDK for mobile devices. The 3D view shows wires, pipes, vents and other infrastructures inside the wall. Thus, we provide a very effective and intuitive way of "annotating" reality.

Thesis Committee

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