

Augmented Reality for Mobile Devices to show information of exhibits at a Museum

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Abstract

Augmented Reality (AR) is one of the emerging technologies being used for enhancing user experience in many applications. Specific devices for various tasks are being replaced by Smart Phones making them a unique platform to implement all functionalities in one device. In this paper we present a real-time AR framework for mobile devices that takes into consideration key technical challenges such as limited processing power and battery life. The framework is having four separate modules, Marker Detection, Identification, Camera pose calculation and Embedding visual information. A 2D pattern called a marker is used to uniquely identify the objects. The marker in the camera view is detected and tracked so that information contained in the marker is exploited. Tracked four corners of the marker are used to calculate the 6 DOF of camera position, which is further processed to place 3D graphics on the real scene with accurate rotation and translation. To demonstrate the capabilities of our AR Framework we have developed an application for iPhones, which highlights significant information in exhibits.

Keywords : Augmented Reality, Image processing, 2D marker detection, camera pose.