

The 9<sup>th</sup> International Conference on Cognitive Science

## Graphics, Audio-visuals and Interaction (GAI) based handheld augmented reality system

Edmund Ng Giap Weng\*, Md. Abdullah-Al-Jubair, Shahren Ahmad Zaidi Aduce,  
Oon Yin Bee

*Faculty of Cognitive Sciences and Human Development, Universiti Malaysia Sarawak, Sarawak, Malaysia*

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### Abstract

Augmented Reality is considered as one of the highly sophisticated technologies in research field of virtual reality. It generates the virtual information to the real world to the user's perception and interaction to perform the tasks. Graphics, Audio-visual and Interaction (GAI) based mobile Augmented Reality is a Human Computer Interaction technology where user can view the multimedia content (like video, 2D, 3D, text, animation) with audio visuals in augmented environment. GAI based mobile AR system allows user to develop their own Augmented Reality applications and games. This system based on Symbian and Android Smartphone where the users can use their Smartphone's camera for real time video capturing and rendering virtual object augmented environments. Users can interact and control the virtual objects by touch in touch enable phone or by button in non touch phone. The general purpose of this technology is to introduce multimedia base Mobile Augmented Reality to user. This paper describes the potential of AR in mobiles and how the various useful features like 2D/3D object, audio, video can be implemented in Mobile AR.

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Selection and/or peer-review under responsibility of the Universiti Malaysia Sarawak.

Keywords: Augmented Reality; Android; Symbian; Multimedia; Interactions; ARToolkitPlus; Virtual Object; OpenGL ES; GAI

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### 1. Introduction

Augmented Reality research intends at creating new Human Computer Interfaces [7]. AR puts data right into the real world. The data can be any computer generated virtual objects like 2D, 3D, text, animation with audio-visuals. AR indistinct the difference between the real world and the user interface. After that AR merges them in a way which allows the developing of simple and intuitive graphical user interfaces for complex applications and games. In recent years, mobile AR has also become a test paradigm for industrial applications in many area like tourism, learning, advertisement the products, gaming, educational etc [3]. These applications requirements many features like 2D, 3D model, text, animations, audio, video etc to fulfill the various types of Augmented Reality application's demands. The AR library GAI focused to bring these multimedia based features in mobile Augmented Reality platform with building simple Augmented Reality system. Graphics, Audio-visual and Interaction (GAI) based mobile Augmented Reality system is a multimedia content based mobile AR solution which is built with ARToolkitPlus. ARToolkitPlus [22] is a tracking library for mobile Augmented Reality. This AR system allows

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\* Corresponding author. Tel.: +6-082-581493; fax: +6-082-581567  
E-mail address: [gwnng@fcs.unimas.my](mailto:gwnng@fcs.unimas.my)