Port of the OGRE 3D Engine to the Pocket PC Platform

João Paulo Silva do Monte Lima¹, Thiago Souto Maior Cordeiro de Farias¹, Veronica Teichrieb², Judith Kelner¹

¹Universidade Federal de Pernambuco, Centro de Informática
CP 7851, 50732-970, Recife, Pernambuco, Brasil
Telefone +55 81 21268954, Fax +55 81 21268955, {jpsml;mouse;jk}@cin.ufpe.br

²Universidade de Pernambuco, Escola Politécnica de Pernambuco, Depto. de Sistemas Computacionais
Rua Benfica n° 455, Bairro Madalena, 50720-001, Recife, Pernambuco, Brasil
Telefone +55 81 21268954, Fax +55 81 21268955, vt@dsc.upe.br

Abstract. This paper presents a port of the OGRE 3D rendering engine to the Pocket PC platform, largely used by mobile devices such as handhelds and smartphones. OGRE is a full-featured open source library for developing applications that make use of real time 3D graphics in any possible way. The original source code has been modified to make OGRE work on the Pocket PC platform, and further optimizations have been done to increase the runtime performance as well. The engine has been tested on a real mobile device with sample applications, using two different graphics APIs available to the Pocket PC. The obtained results were then compared with the ones collected from the desktop version of the library.

1. Introduction

The development of 3D applications usually becomes a complex project that demands a set of reliable and efficient tools for being completed. One of these tools is a graphics engine that is responsible for properly rendering the scenes needed in the application. Graphics engines should have plenty of features that make the developer job easier, and at the same time they should still present a good overall performance. Nowadays, there are diverse application areas that require a 3D interface, such as simulations, games and virtual and augmented reality projects. One of the latest trends for this kind of project is targeted to mobile and embedded devices, which represent a challenge, due to the limited resources present on those systems. The existence of a high-level graphics engine for mobile devices is extremely useful for a better and faster development experience.

This paper details the process of porting OGRE (Object-oriented Graphics Rendering Engine), described in [1] and [2], to the Pocket PC platform, which is currently used by many mobile devices. OGRE is an open source solution for the creation of 3D real time applications and its official release supports many operating systems, like Windows, Linux and Mac OS. Moreover, there are ports for other different platforms, such as FreeBSD. OGRE was also modified to work with several gaming consoles, like Xbox, PlayStation 1, PlayStation 2 and Dreamcast.