DEVELOPMENT OF STRUCTURAL ENGINEERING AND EDUCATIONAL APPLICATIONS USING GAMESALAD

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Summary

As the sales of smart mobile devices overtake that of desktop computers, it is accepted in the IT/Computer industries that eventually more applications and data would be accessed through smart mobile devices. Furthermore, due to their touch interface, using these devices are more easy and accessible for children and adults, increasing their usage even further. In this regard, it is imperative that more applications in the field of engineering and education be developed for these devices.

The main challenge in developing for different devices is the need to familiarize with different programming languages. Academics and professionals, already busy with their work, may find it difficult to develop programs for these multiple platforms. To solve this, Gamesalad (www.gamesalad.com) developed a program which would enable non-programmers to do programs with sophisticated interfaces and features for different devices.

This paper discusses the application of the Gamesalad program in the development of structural engineering and educational purpose applications. It would be shown that through its easy to use coding techniques and compatibility for all desktop and mobile platforms, useful programs for students and professionals can be made even without deep programming knowledge for all these platforms. This would help education progress further to the mobile age.

A short introduction and tutorial for Gameslad will be shown first. After this, the applications of Gamesalad to the following examples will be discussed: (1) A Simple Graph Program (2) A Truss analysis program using touch only (3) A reinforced concrete beam program considering seismic design and detailing requirements and (4) Concrete Strength Prediction using ANN Model.

Keywords: Gamesalad, Mobile Applications, Engineering Education.

1. Introduction

The development of new technologies like tablet computers and other mobile computing technologies has opened more possibilities in terms of education. Indeed, through the interactivity and instant feedback mechanisms of these devices, scientific and unscientific observations (e.g.: parent observations) can attest that many children learn basic knowledge like mathematics, vocabulary and alphabets much faster. [1] (Seshan 2011)

The promise of these new technologies to revolutionize education has led many teachers in primary, secondary and tertiary to use them to complement their traditional teaching. Though this technology is fairly recent, there are already studies conducted that tries to measure the effect on learning and the acceptability of this new technology to teachers and students. A study by Dundar and Akcayir [2] (Dundar and Akcayir 2014) concluded that using these technologies made classes "more enjoyable and students' motivation increased by tablet PC usage". However, this study also mentions that "some teachers have difficulty in preparing content and spend considerable time learning how to use tablets." Another study by Ifenthaler and Schweinbenz [3] (Ifenthaler and Schweinbenz 2013) done in Germany found out that most participants in the study were not clear

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