gRmobile: A Framework for Touch and Accelerometer Gesture Recognition for Mobile Games

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Abstract:
Mobile phone games are usually design to be able to play using the traditional number pads of the handsets. This is stressfully difficult for the user interaction and consequently for the game design. Because of that, one of the most desired features of a mobile games is the usage of few buttons as possible. Nowadays, with the evolution of the mobile phones, more types of user interaction are appearing, like touch and accelerometer input. With these features, game developers have new forms of exploring the user input, being necessary to adapt or create new kinds of game play. With mobile phones equipped with 3D accelerometers, developers can use the simple motion of the device to control the game or use complex accelerated gestures. And with mobile phones equipped with the touch feature, they can use a simple touch or a complex touch gesture recognitions. For the gesture to be recognized one can use different methods like simple brute force gestures, that only works well on simple gestures, or more complex pattern recognition techniques like hidden Markov fields, fuzzy logic and neural networks. This work presents a novel framework for touch/accelerometer gesture recognition that uses hidden Markov model for recognition of the gestures. This framework can also be used for the development of mobile application with the use of gestures.

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I. Introduction
Digital games are defined as real-time multimedia applications that have time

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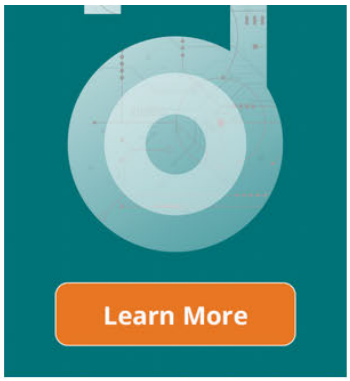

I. Introduction

Digital games are defined as real-time multimedia applications that have time constraints to run their tasks. If the game is not able to execute its processing under some time threshold, it will fail [1]. Mobile games are also real-time multimedia application that runs on mobile phones that have time constraints and many others constraints [2], when compar

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ardware constraints (processing power and screen size), user input (buttons, voice, touch screen and accelerometers); and different operating systems, like Android, iPhone OS, Symbian and Windows Mobile. This makes streamlily difficult for the design and development of

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