The Edutainment of Virtual Music Instrument for Thai Xylophone (Ranad-ek)

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Abstract—The edutainment of virtual music instrument for Thai xylophone (Ranad-ek) developed under the Virtual Reality Media project, School of Information Technology, Sripatum University, Chonburi Campus. The Virtual Music Instrument (VMI) developed following a physical modeling approach, is presented, along with a classification scheme of real Ranad-ek (Thai Music Instrument as a type of xylophone) and their real characteristic acoustic implement. Therefore, the purpose of this paper was to develop the edutainment of virtual music instrument for Thai xylophone (Ranad-ek) and evaluated by five experts. However, this system was designed as edutainment and usability study progresses. As researcher begin 6 methods of the study, several modifications have been made to improve the interface, appropriate model, system control, sensitivity, computer compatibility, rapidity, and ease of use. It can confirm that edutainment of virtual music instrument for Thai xylophone is a novel software program and provides chances of reaching toward professionals cite benefits to user.

Keywords—Virtual Music Instrument; Edutainment; Thai Musical Instrument; Thai Xylophone;

I. INTRODUCTION

Edutainment which combines education and entertainment are becoming popular in concepts for lifelong learning [1], [2] have shown that edutainment improves learning achievement by increasing users’ enthusiasm. However, most of the edutainment systems are based on implants virtual environment and the interaction with these systems are still not simple because the interface does not familiar. To decrease the gap between the virtual environment and the real world, an edutainment system presents a user-friendly interaction. In order to finding innovative edutainment, technology solutions, and create a variety ways to provide electronic resources for user. In recent years, many researchers have to adopted edutainment, virtual environment interfaces, human computer interaction, Virtual Music Instrument (VMI), and learning content [3] [4]. However, Development of edutainment has been successfully used in learning innovation, entertainment, training, and other application. An virtual musical instrument, or virtual environment for music and sound, represents sound processes and their parameters as entities of a virtual reality so that user can be perceived not only through auditory feedback but also visually in and possibly through tactile as well as haptic feedback, using interface consisting of interaction techniques such as navigation, selection and manipulation [5]. VMI builds on the trend in electronic musical instruments to develop new ways to control sound and perform music. The VMI provides individuals the opportunity to learn to play an instrument regardless of their mobility or ability. It also has the potential to address goals in the physical, cognitive, communication, sensory, and social domains. It gives user access to a leisure activity, encourages exploration and offers a channel for emotional expression.

The edutainment of virtual music instrument for Thai xylophone have to combine Thai classical music instrument (Ranad-ek), traditional culture and technology to edutainment. It addresses past limitations by providing user with an interface that enables them to play music without having to real instrument. Ranad-ek is a type of xylophone in high pitches which consists of 22 wooden bars strung together into a bridging set, being hooked on top of a long resonant box by both ends making an oblong curved shape that looks like a boat. The bars can be made either of bamboo or a kind of hard wood called ‘Mai ching chan’. Ranad-ek is played as the leading instrument of an ensemble; and its playing method has been known of developing into very high degree of skill [6]. Therefore, this study presents research to develop the edutainment of virtual music instrument for Thai xylophone (Ranad-ek). It as an VMI system used to supplement concepts for lifelong learning and also given regarding different user groups, including students, music teachers, composers, and musical instrument craftsmen for learn and play. The researcher expects that this system can increase wisdom and development user that knowledge can be applied successfully.

The remainder of the paper is organized as follows: firstly in section 2 we discuss the approach and illustration of the components’ architecture. Finally, in section 3 we discuss the results at the moment, point some limitations and provide cues for possible future work.
II. THE APPROACH

The edutainment of virtual music instrument for Thai xylophone (Ranad-ek) developed following a physical Ranad-ek model approach and real characteristic acoustic implement. This system was design as edutainment and usability study progresses, researcher continues to study ways of making the VMI accepted and utilized as a conventional instrument. In order to the system can access or download at http://innovation.east.spu.ac.th/ranad. Accordingly this research will consider six methods that have been made to improve the interface, appropriate model, system control, sensitivity, computer compatibility, rapidity, and ease of use. Thus, the basic aim of virtual music instrument for Thai xylophone supported mainly platform of computer and mobile device.

The virtual music instrument for Thai xylophone (Ranad-ek) was the first widely-available mobile multi-touch of Ranad-ek music instrument. The mainly mode display realistic graphics, user can see realistic keys really move as you press them. The system applies virtual soft and sustains pedals to the sound. The navigator of this system showed the full 22 key of Ranad-ek wooden bars with easy-to-use scroll buttons and multi-touch. Optionally label the keys of the Ranad-ek to aid navigation and showed label of the keys with a color indicating the track. Another interesting of this system showed that zoom in or out of the keyboard. User can display anywhere from track horizontally on screen. A smaller number of keys means a larger target for your fingers and makes it easier to play chords. User can reach more notes when playing live without having to scroll the screen. However, the system will run happily on all models of computer and mobile such as Window, OSX, Android, and iOS. It really comes to edutainment and lifelong learning concept with rich resolution textures that bring an unprecedented level of clarity and sharpness. See Fig. 1.

Finally, this system can confirm that edutainment of virtual music instrument for Thai xylophone is a novel software program and provides chances of reaching toward professionals cite benefits to user.

III. CONCLUSION AND FUTURE WORK

The edutainment of virtual music instrument for Thai xylophone (Ranad-ek) was the first widely-available mobile multi-touch of Ranad-ek music instrument. Pedagogically highly valued products are on the market and have a proven success to combine Thai classical music instrument, traditional culture and technology to edutainment. In addition, the edutainment of virtual music instrument for Thai xylophone interact with user via realistic physical of Ranad-ek model and also support mainly platform such as Window, OSX, iOS and Android. More ever, for the result at the moment showed that user more interest and enthusiasm in virtual music instrument. Moreover, user had more satisfaction to use this system.

For the further, we plan to tryout the proposed system with more 100 students of primary school at Chonburi Province, Thailand and find the efficiency of this system. In addition, researchers plan to continue our research, looking for different Thai virtual music instrument such as SAW, JAKAE, KHLUI, PI, GONG-WONG, and THONE-RAMMANA. We also plan to investigate the learning technology such as develop the music instrument games and serving as an online virtual reality museums of Thai music instrument.

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