

Designing an expressive virtual Kompang on mobile device with tri-axial accelerometer

ABSTRACT

The paper presents an expressive virtual percussion instrument for Kompang on mobile devices that closely replicate the actual instrument. In nowadays, most available applications are lacking expressiveness control as these applications only use trigger-type event to play corresponding sound. This paper is therefore implemented a simple extraction method by extracting percussive features from embedded sensors to map with the output sound with minimum delay. Multiple features related to the shape of the drum hit are extracted by using tri-axis accelerometer sensors of the mobile device. These features provide an expressive percussion experience that closely imitates playing an actual instrument. An application of the virtual instrument for Kompang is described with an evaluation of the system with ideas for future developments. Result from the study showed that the feature extraction algorithm had an accuracy of 86.78% at detecting drum hit at its peak acceleration value. The questionnaire results also indicated the participants were satisfied with the system in overall.

Keyword: Gesture recognition; Mobile music; Music interaction; Natural user interface