Finger triggered virtual musical instruments

ABSTRACT

With the current human movement tracking technology it is possible to build a real-time virtual musical instrument with a gestural interface which is similar to a real musical instrument. In this paper, a simple finger triggering based controller for virtual musical instruments is presented. The virtual musical instruments that can be operated by using this controller are piano and drum. This system consists of three main components; finger data glove system, musical notes recognition system, and data transceiver system. Finger triggering devices are mounted to each finger in a data glove. This finger data glove has the capability to get data from triggered devices and the attached microcontroller in the data glove system is used to receive the data before transmitted to the musical notes recognition system through wireless or wired transmission. The musical notes recognition system matches the received triggering signal data with the predefined musical notes data using matching algorithm. When the data is matched, the musical notes data will be playing the associated musical notes. The developed system has the ability to switch the virtual musical instruments between piano and drum. Nevertheless, this developed finger triggered virtual musical instruments has the real-time capability to analyze the sounds or musical notes that have yet encountered in the studio.