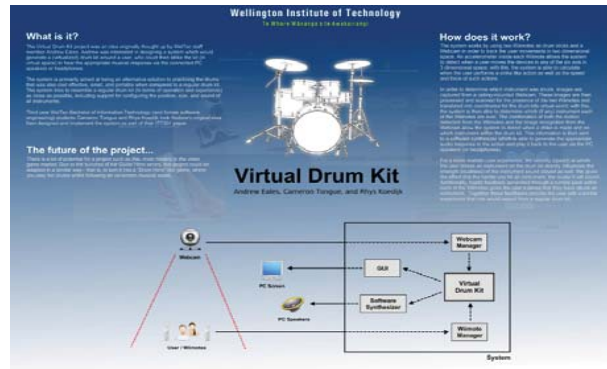

The Virtual Drum Kit



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Abstract

This project was to produce a virtual drum kit which could generate the sound of drum beat/s, activated by two hand held Wiinotes as drum sticks and a Webcam to track the users movements in two dimensional space. An accelerometer inside each Wiinote measures

the velocity (speed) at which the user strikes, allowing the system to detect when a user moves the devices in any six axis in 3 dimensional space. This will calculate when the user performs a strike-like action as well as the speed and the force of such action to generate varying volumes of sound. A ceiling mounted webcam will capture the position of the two Wiinotes to see what drum each Wiinote is over. The combination of both the motion detection from the Wiinotes and the image recognition from the Webcam, allow the system to detect when a strike is made and which instrument within each drum kit. This information is then sent to a software synthesizer which will generate the appropriate audio response to the action, and play it back to the user via a PC, speakers or headphone.paper

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