

ABSTRACT

Along with the development of technology, The use of computer input tools is also evolving. Starting from using the keyboard, which has a specific message from each button, and then expand to the touch screen, which enables humans to interact directly with the screen. And now being developed technology where people can provide input to the computer by using gesture. Gesture detection can use some tools, one of them is the kinect sensor. Kinect sensor is a 3D camera sensor which captures colored pixel data flow and depth data of each pixel (depth data). kinect has a great ability to record 3D object information. In this Final Project will be designed a system that can identify of basic movement on the game using a kinect sensor. These movements include jab right, jab left, uppercut right, uppercut left, kick right, kick left, block right, and block left. By using depth features on kinect sensor can be obtained data skeleton user which will be used as a reference in the identification of movements. The system is designed using Matlab 2015a software at the end of the designed system is able to recognize an input gesture with the movement of the human body. System that has been designed in this final project aimed at the development of gesture recognition. The designed system is expected to develop gesture recognition from kinect in terms of delay process system and user distance. The basic movement identification system in the game has been able to analyze the types of basic movements in the martial arts game, among others jab right, jab left, uppercut right, uppercut left, kick right, kick left, block right, and block left. With an accuracy rate of 71.25% for a distance of 80-120cm, 82.50% for distance 120-200cm, and 63.75% for distance 200-350cm. The maximum system accuracy level in identifying the movement can reach 82.50%, and a minimum accuracy rate reached 63.75%. The average time processing the entire system 0.071375 seconds. The fastest processing time is 0.0403 second in the left Block movement and the longest processing time is 0.1042 second in the Uppercut Right movement.

Keywords: Kinect Camera, Depth Sensor, Skeletal tracking, Gesture Recognition