ABSRACT

Virtual Mouse is one example of augmented reality which the user can move and operate the mouse pointer through webcam. There are many kinds of Virtual Mouse such as using a certain marker as the object to move the pointer and also using a hand as the object to move the pointer. Hand tracking by virtual mouse is needed good establish tracking. Here the Lucas Kanade algorithm and Kalman Filter will be designed to establish good hand tracking for virtual mouse.

In this final project, will be analyzed the parameters of tracking which are accuracy and computation time. The system will be designed started from skin detection and finding hand contour to get the high accuracy of hand shape.Then will be search the cemtroid of hand which is used as mouse pointer. This centroid will be tracked by Lucas Kanade and Kalman Filter in the system.

The experiment result shows that the tracking get the good result if we test it in indoor place tha the outdoor place. In indoor place with simple background, the system can get the average result of accuracy level almost 100% whereas the accuracy in outdoor place give the average result is 80%. In complex background the average result given by system is 67%.

Keywords : Augmented Reality, Virtual Mouse, hand tracking, Lucas Kanade, Kalman Filter, Human and Computer Interaction