ABSTRACT

Augmented reality and human computer interaction technology is very closely related to each other. Augmented reality is a technique to add or complement the digital content through the real world using a computer. Over the last decade this technology is very popular among researchers and large technology companies around the world because of its potential to become a technology that makes easier for humans in the future. Along with the development of innovation and human needs, Augmented reality technology combined with other technologies to attract the market that exists today.

In this final project created Augmented reality system with a combination touchless resizing object which can add innovation of image processing technology. Augmented reality is made with a combination of algorithms SURF (speeded Up Robust Feature) and algorithms Kanade Lucas tracker is selected because it has the reliability in detecting and tracking marker in terms of resistance to transformation marker such as rotation, changes scale, change of viewpoint relatively small, and can describe the detected features uniquely. And will also be created a system that can establish interaction between humans and computers with blob analysis method for resizing an object in Augmented reality system.

Results obtained from system design in this final project with use the algorithm is, with a distance of 80 cm and rotations ranging from 0° to 180° system is capable of detecting marker with an accuracy percentage of 100% and 80% when the marker damaged. And the best maximum distance interaction between human and object in Augmented reality system is 60 cm with an accuracy percentage more than 80%.

***Key Words**: Touchless resizing object, blob analysis, Augmented reality, Speeded Up Robust Feature, Kanade lucas tracker.*