ABSTRAK

Hologram is a 3-dimensional projection of an object projected on 2-dimensional surface. Holographic image can be applied in various fields such as entertaiment, education, etc. Holograms can also be a technology for information delivery. Human computer interaction (HCI) is the study of how humans and computers can interact.

In this Final Project, designed a projection screen that displays images as if they were 3 dimensions that can interact with hand gestures to convey information. This system moves in real time for the introduction and detection of user-determined hand movements taken using a webcam camera. In this system SURF is used to get the bag of visual words feature from the user's hand. That feature will later be used to predict the user's hand. The system can improve its accuracy during the test time by using the reinforcement learning method, where the user has the ability to provide positive or negative feedback for each of the previous system's predictions and the system will update itself during the test time for better predictive results.

In this final project, the test is carried out in 3 stages, 30 frames, 40 frames and 50 frames and the hand distance configuration is applied to the camera. Based on the experiments conducted, the accuracy value obtained continues to increase in each stage. The best results were obtained for the accuracy of hand gesture prediction when using 50 frames of data at 98.70%. The HCI process on the hologram when entering a unique gesture from the user's hand can open Google, Instagram, and videos on YouTube.

keywords: Hologram, Hand Gesture, HCI, Webcam, 3D, Reinforcement Learning