

## **Abstract**

The proliferation of cheap sensors and increased processing power has made the acquisition and processing of video information more feasible [2]. A series of video analysis such as object detection and object tracking has been done. However, developing a visual tracking algorithm that is robust to a wide variety of conditions is still an open problem [5].

In this final, face tracking system developed by using a particle filter that uses three cues, such as color cue, shape cue, and motion cue. Experiments were done using data in the form of a video that consists of one face, two faces, and three faces. Measurement accuracy will be conducted with the use of various combinations of cues of each test data. Testing results show that not all color parameters in the RGB color channels must be used. The maximum level of tracking accuracy of a single face is obtained by using a combination of these three features. Particle modeling is needed which is different for each cues in order to get maximum result. While for tracking multiple faces, the method with the use of these three cues show minimum results.

Keywords: object detection, object tracking, color cue, motion cue, shape cue, color channels, single tracking, multiple tracking.