

## **ABSTRACT**

*Video Chat applications can display images, so it's needed a tool like webcam to support it. With a webcam you can see and chat each other. But recently, most webcams are still to be static (not moving), so this is some trouble for users.*

*Therefore, purpose of this Final Project, is create some tool that is Face Tracking Device. That is based on webcam that can detect face, then follow it. Webcam and servo motors are integrated to follow wherever the face moves. In these systems can only detect one object face alone. Then the response delay of the servo motor to follow the movement of the face is about 1 second. And delay capturing image on webcam, when frame webcam do not detect any face object is about 6 seconds.*

*Viola-Jones method could detect the whole face easily. According to test result, the objects such as the face without accessories, the face by using glasses, the face by using a hat, and mask like face, and each object has the percentage is about 97% detection of the distance in the morning, daylight, and afternoon. With the effective distance to be able to detect faces between 20 to 300 cm. But at the night, the percentage is about 47% detection of the distance. With the effective distance to be able to detect faces between 20 to 150 cm. On the other hand, the Viola-Jones method has a weakness, cannot distinguish the faces of original the object (3 Dimentions) and mask like face (2 Dimentions). And to control the movement of webcam, in 2 pieces of the servo motor is driven using the method of Fuzzy Logic. And the best results from four experiments is Experiment 1. Because the tool has a delay adjustment faces the central point of the frame faster than the other three experiments, which is about 6 seconds.*