

## **ABSTRACT**

*Detection of moving ball on table tennis with background subtraction and estimation method is one of the many methods used. Determine ball conditions with the Kalman filter, the detection and correction process is very suitable on this method. Detection and tracking of balls with subtraction background and estimation based on Kalman filter, making this final research has unique way than the other methods.*

*In this final project designed a video processing program to detect movement and determine the condition of the ball from table tennis game. Background subtraction and estimation method is used to separate between the background and foreground, so that the object will be detected. Detection and tracking of the ball with a filter calm, allowing the system to determine the ball as it passes through the net and the line.*

*In the detection of orange ball, at 1 meter distance and area 250 pixels get 100% accuracy. Ball detection when passing line, could be at area 250 pixels and 500 pixels with accuracy 100%. Ball detection when passing the net at area 500 pixels with accuracy 81,81%.*

**Keywords:** *video processing, detection, table tennis, background subtraction, Kalman filter.*