

## **ABSTRACT**

Augmented reality is a technology that combines the virtual object into real world in realtime. One of the implementations of these technologies is application The Book Animals Introduction to Early Childhood. It's expected that this application becomes a media of learning for early childhood teaching effective and interesting. These applications can be built use ARToolKit library.

The most fundamental of augmented reality is the detection marker. Library ARToolKit have shortcomings in detecting marker. The process of detection marker in the library is done by finding four straight lines of markers that are interconnected, so that the application can't detect the marker when marker conditions are not ideal as little obstructed by other objects, so the marker is only visible partially. To overcome these conditions, necessary to optimize the performance of detection marker methods such as the Martin Hirzer method. In these methods there are stages in the process of detecting the marker starts from detecting edges, build the line, combining lines, extend lines and building rectangular.

The results obtained in this thesis is application The Book Animals Introduction to Early Childhood and performance analysis detection marker in library ARToolKit and detection markers using Martin Hirzer method.

Keywords: augmented reality, marker, marker detection, ARToolKit, Martin Hirzer