

## ABSTRACT

The virtual world of Augmented Reality is created by markers recognition, they are Marker and Markerless. Marker doesn't have a real object in our environment and visual aesthetic, whereas Markerless use a real object in our environment as an AR marker. Marker recognition can do one by one (single) or do it together at the same time (multiple). Single marker recognition need more times execution than multiple marker recognition for getting information from the objects. So, using Marker and single recognition haven't gotten a good preseption and a good using time for user.

This research aims to developed recognition of multiple-markerless Augmented Reality that implemented template matching method for recognizing and grouping Markerless pattern. The template matching were recognition method based on distribution of object features pattern. Markeless-s that can be recognized by AR in this research were Samsung Galaxy Series Dummys.

The testing methods in this research were done by White Box testing (structural) and Black Box testing (functional). The result of white box testing was system cyclomatic complexity. The results of black box testing were performances and requirements system. The performance testing was a system abilty testing to recognized and grouped of markerless-s, and the requirement testing was a recognition testing of markerless-s to specification smartphone. So it was gotten markerless AR that can recognized well, and specification smartphone requirement that can recognized markerless well.

**Keywords:** Augmented Reality, Black box, Multiple-Markerless, Template Matching, White box.