

## ABSTRACT

Researching on letters recognition has developed enough, but the development of the Arabic alphabet pattern recognition has not been as fast as the other letters. This is due to the introduction of the Arabic alphabet has a higher difficulty level than the other letter recognition. As Muslims, the Arabic alphabet is a letter that must be learned. So, there must be a letters recognition system that can make someone understand Arabic easily.

Converting Arabic sentence to Latin was done by two stages, such as, feature extraction and classification. To perform feature extraction, it uses *Modified Direction Feature* (MDF) Method. MDF combines direction feature extraction and transition feature extraction, which combines features of the direction and the global structure of the existing information on the characters. Then, to do the classification, system uses Adaptive Resonance Theory (ART-2) Neural Network. ART-2 has the ability to learn input patterns in analog and binary without guidance.

Arabic to Latin system which combines Modified Direction Feature and Adaptive Resonance Theory-2 made a conclusion that the system can be used to extract patterns and classify Arabic letters. Accuracy Level of the system is affected by normalization, number of transition, vigilance and learning rate. Accuracy of the system in Arabic letter recognition reached 100 %

Keywords: Arabic Letter, Arabic Segmentation, Modified Direction Feature (MDF), Adaptive Resonance Theory 2 (ART-2) Neural Network.