

## ABSTRACT

Mangrove forest is available along beach line which is located in tropical area. Mangrove has some functions, such as keeping the stabilization of beach line, protecting beach and river bank from damage, absorbing carbon dioxide, and many more. Therefore the measurement of mangrove forest width is an important thing to do to know the forest condition for preventing the decrease of forest width which is now getting down.

This system uses two applications, Matlab Application and Google Earth. The first step to do is building database which will be tested later by testing process which started from get images, preprocessing, feature extraction by using DCT method, and classification using Fuzzy Logic. Testing process is started by using Google Earth and then the data is processed in preprocessing step. After that, classification process is conducted to determine each class that has been already done feature extraction by using DCT method. Width measurement is conducted after the image class based on the determination of features extraction.

Based on the research results, to calculate the area of mangrove forests by using DCT feature extraction and classification using Fuzzy Logic obtained accuracy rate of 94.638% by using the red channel as well as the size of box 8x8 pixels and a *epoch* value 50. The computing time to calculate the width obtained 8.79 seconds.

**Keyword:** *Matlab, Google Earth, Discrete Cosine Transform, Fuzzy Logic.*