

## **ABSTRACT**

*Calculation of mangrove forest area needs to be done remembering that the area of mangrove forest decreased because of the transition of land to other use. Therefore, a system to detect mangrove forest and to calculate the mangrove forest area accurately and fast is needed.*

*This final task uses image from Google Earth application to detect the mangrove forest on North Coast Jakarta and calculate the area of mangrove forest itself. Image is taken from Google Earth application using internet connection. The next step is that the image will be corrected from atmosphere using radiometric correction. Curvelet method is used to extract the features. Classification method used is K-Nearest Neighbor classification.*

*Based on the result of the research, The calculation of overall area based on data is 85.13% using Cityblock distance,  $k=1$ , and three features. If overall area is calculated based on the best matches, the highest accuracy of image obtained at 81.80% using Cityblock distance,  $k=1$ , and two features. If the calculation done only by calculating the mangrove forest area only, the highest accuracy based on data is at around 29.53% using Cityblock distance,  $k=7$ , and three features. 23.56% obtained for calculation based on suitability and best matches using Cityblock distance,  $k=1$ , and two features. The average computational time to calculate the area is at around 22.65 minutes.*

*Key words: Mangrove Forests, Google Earth, Curvelet Transformation, Digital Image, K-Nearest Neighbor (KNN).*