ABSTRACT

The medical world nowadays cannot be separated from developing technology, which is strictly bounded with digitally image processing. *MRI (Magnetic Resonance Imaging)* is one of digitally image processing development that is assumed would be very helpful in medic. With the use of it, the doctors or radiologist will be able to analyze and diagnose the anatomy and brain cancer of many patients without doing any surgery just to find out their medical condition.

This final assignment will develop a computer based diagnosing system which can be used to detect the brain cancer. As an input, the *MRI* images will be processed by, such as pre-processing, segmentation, feature extraction, feature selection, and classification. The *LDA* (Linear Discriminant Analysis) will take the role as feature extraction. The reduced features after the feature extraction process will not lose their meaning so they can help the classification process more quickly and accurately. Later, the classification will be done by the method called *SVM* (Support Vector Machine). It will transform the inputs, which have the dimensions been reduced, by constructing the *hyperplane* which is have the maximum distance from the nearest spots of the data training set.

Basically, the developed system will use the *MRI* images as inputs. They will be processed until they produce the outputs that have been analyzed and classified by the system so it can be able to ease the doctors and radiologist diagnosing the brain cancer more quickly and efficient as expected. The accuracy level of the system is 82.666%.