ABSTRACT

Some natural disasters and accidents could make the condition of the victim difficult to identify. This is because the physical condition of the victim has been damaged by natural disasters and the accidents that is quite severe. Therefore, the teeth can be used to make it easier to identify the age of the victim because teeth are part of the human body that is not easily destroyed and resistance to various kinds of evironmental changes.

This is the reason for this research, using digital image processing based on the image of a panoramic radiograph to detect this age has better accuracy than manual examination. The identification is processed through a panoramic radiograph digital image that has been preprocessed first to become the system input and the output is in the form of age detection. In this final project, design and research have been carried out to identify the age of humans based on the pulp of the first molar. The method used to process from the dental panoramic radiograph is the Histogram of Oriented Gradients and classified using Support Vector Machine.

The result of this Final Project is a system that able to identify the age of humans through teeth pulp. In this system used 1356 images were classified into 28 classes with 1088 training images and 268 test images. From the results of the tests carried out, the greatest value of accuracy is 67.5373% with computation time of 6.1956 seconds. The results obtained using the HOG parameter are cell size 32×32*, block size* 4×4 *and bin numbers 12. In the classification process using the SVM method the best type of kernel is the 4th order polynomial kernel and OAA multiclass.*

Keywords: *Histogram of Oriented Gradients*, *Support Vector Machine*, *Panoramic Radiograph*, Citra Digital.