ABSTRACT

In today's modern era, the development of technology brings considerable change. This can be seen with the many uses of digital technology in everyday life. Digital image processing is one form of development in the world of technology that has a big influence in the digital world. There are several patterns of imagery used related to researches, one of which is the texture of the face. Face recognize is one form of implementation of image processing using facial textures. The technology is useful for recognizing objects from digital imagery based on faces.

In this final task study, the authors designed an age range analysis system based on facial expression. The method used is the Eigenface extraction method which is useful for finding the best vectors that can represent the distribution of facial imagery in an image, and is combined with the Hidden Markov Models classification method used to identify the age range of the collected facial imagery data, and group a group of images against specific classes. The images are grouped by age range divided into 5, namely according to the Ministry of Health ri (2009) for infants 0-5 years, children 6-11 years, teenagers 12-25 years, adults 26-45, and seniors 46-65 years. In this study, facial imagery data was taken as many as 75 for training data imagery and 25 test data images. Image data retrieval is done manually.

Based on the results of age range analysis system based on facial imagery using Matlab R2018a application that has been done, the best results have been obtained by using testing, original image testing, cropped imagery, noise-rendered imagery, and filtering imagery. Each test produced the highest level of accuracy of 100%.

Keywords: *Face recognize, Digital imagery, Eigenface, Hidden Markov Models, Age range.*