ABSTRACT

Biometric recognition system is a pattern recognition system that uses physiological characteristics or behavioral characteristics to identify a person's identity. Face is one of the most potential physiological characteristics used in biometric recognition system.

The aim of this final project and focus in the implementation of digital image processing to design a system capable to recognize someone's face. This system will be designed with the Python language using software IDLE (Python GUI). In addition the system also implements digital image processing is used to recognize the plate number using openALPR algorithm. Face recognition system uses an algorithm PCA (Principal Component Analysis) in the training and test images. And the system uses a classification euclidean distance to match the characteristics of the image practiced with test images.

From simulation systems already done, get the highest accuracy of the system is 93.33%. The condition was obtained by using a threshold value of 0.4, meaning that if euclidean distance of the characteristics of test images with the data train characteristic image above 0.4 then the system does not recognize the test images. Based on test results, the best distance between the camera and the object is 1 meter, the camera can be placed at an angle 450,900,1350, and with the best normalization value 92 x 112. Average computing time of this system is 1.907428571 seconds, with an average CPU Usage 31.48571429% which indicates that this system does not spend memory resource.

Keyword : PCA, Raspberry Pi, open ALPR, face recognition