FACE COMPONENT EXTRACTION USING SEGMENTATION METHOD ON FACE RECOGNITION SYSTEM

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ABSTRACT :

Biometric technology has been frequently utilized by researchers in identifying and recognizing human features. This technology identifies humans unique and static body parts, such as fingerprints, eyes, and face. The face components processing and analysis are used to identify and recognize a human face. A number of researchers applies face component characteristic (eye, nose and mouth) as a component for face recognition. Hsu applied three components e.g. the distance between two eyes, the distance between right eye and mouth and the distance between left eye and mouth. Zlávik and Chan also applied three components e.g. the distance between two eyes, nose width and mouth width. The result of the use of these three components was not good enough, resulted from the change of component value when there exists a face expression.

The objectives of this research was to develop face recognition system through three phases, firstly, localize the face image into face component that is eye, nose and mouth; secondly, calculate the distance between face components, and thirdly, is recognize the face using the eight components.

In this dissertation, eight components, instead of the three, were used. The reason is based on the fact that for frontal face, position of nostril and distance between two eyes will not change although there is a face expression. In this research, the author proposes eight components : left eye - right eye, right eye - mouth, left eye - mouth, right eye - nose, left eye - nose, nose mouth distances, plus nose height and nose width. The object used in this research is a frontal single still image. Distances between components are measured, and then combined with other components to identify the face image.

Test of uniqueness to150 Indonesian samples (Asian race) has succeeded. The result indicated that eight face component distances give better result than the previous one, which only applied three components distance. The uniqueness increases from 93.33% to 100%. The test of uniqueness with eigenspace showed

the existence of different characteristic for every face image.