

## ***Abstract***

*Eyes are the most important features of human face. Eye Detection is used in Face Detection System or Face Recognition System. This research will approve the accuracy of template matching, genetic algorithm, and hough transform in Eye Detection. Eye region and eye pair candidates are extracted by template matching that has been combined with genetic algorithm. Hough transform is used for precise eye detection, that is useful to detect whether eyes are open or closed.*

*The proposed method is evaluated on the BioID Face Database. This set features a larger variety of illumination, background, and face size. It stresses real world condition. So it is believed to be more difficult than other dataset containing images with uniform illumination and background.*

*The eye region and eye pair candidates can be selected succesfully in most cases, no matter whether face patterns are in different scale and illumination condition. The results show that genetic algorithm makes the eye detection system faster and more accurate. The accuracy of system increases up to 50%, and the process time is faster up to 5 times.*

***Keyword :*** *eye detection, template matching, genetic algorithm, hough transform.*