Bahria University
Discovering Knowledge

FINAL YEAR PROJECT REPORT

EYE GAZE BASED INTERACTION WITH LARGE PUBLIC DISPLAYS

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ABSTRACT

The objective of this project is to develop eye-based interaction with large public displays. This report explores a technique which enabled us to give input to the display through eye blinks. Different stages involving image processing like the pre-processing stage, segmentation and feature extraction will be studied and discussed. Finally, the end product of the algorithms is written in python.

A novel method for eye tracking and blink detection in the video frames obtained from low resolution consumer grade web cameras. It uses a method involving Haarc based cascade classifier for eye tracking and a combination of HOG features with SVM classifier for eye blink detection. The presented method is non-intrusive and hence provides a comfortable user interaction.

This project uses Machine Learning technique to develop the software. The main advantage of using this technique is that it provides features extraction and detection that is suitable for eye-blink recognition. After trials and errors, a suitable set of training parameters are defined and network is structured. This system is designed to customize the network for an individual user interacting with large public displays.

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