

Infinite PC

Ammar S.Suliman¹, Diyaa I.Najjar², & Eng. Ezdehar Jawabreh³

Department of Applied mathematics & Computer Science ,Collage Of Applied Sciences,
Palestine Polytechnic University, Hebron, Palestine,Dnajjar@live.com

This project presents a novel idea to build software package that able any user to control his computer system with eyes or gaze tracking. Our program is designed to monitor the gaze of a user working naturally on a computer and perform Gaze tracking to detect and follow the direction in which a person looks. This can be used for instance in human-computer interaction, but in our project we specially focus on people with special needs, since they might have no other alternatives to control and interact with their computers. In our project Microsoft kinect camera is used to get the video stream needed to achieve our goals..

People with physical disabilities face a lot of problems in communication with other people. Also they are deterred from using computers due to their inability to use a hand-controlled mouse or other pointing devices that deprive them from the biggest source of information now a day which is the internet. In this project we aim at developing a new software package that can be used with eye gaze. The direction of pointing will be determined by iris position, to perform that first, we use a Haar classifier to detect the eye in the video stream. Next, PCA (Principle Component Analysis) algorithm is used to get iris position which is known as a very accurate algorithm. This program is based on computer vision and image processing so no extra hardware sensors is needed, just a Microsoft kinect camera and infinite PC package.