GUI CONTROL WITH HEAD GESTURE

A PROJECT REPORT

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BONAFIDE CERTIFICATE

Certified that this project Report "**GUI CONTROL WITH HEAD GESTURE**" is the bona-fide work of "**REAJUL HAQUE REAYZ** & **PRASHANTA KUMAR DEY**" who carried out the project work under my supervision.

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ABSTRACT

This system can be adapted accurately for detecting facial features. It is a free line up that allows a physically challenged user to control the pointer of the mouse on a processor with the help of head movements. The movements of head are liberated clicking with the help of mouse pointer abide over a spot on the screen. This is application which is helpful for the people who are disabled. The foremost spectators for this program are people who do not have committed control of a hand but who can only move their head.

In this project, we have used the Haar-like features to detect faces with OpenCV and implement those using python. Only the frontal faces can be detected. The face detection is done in three phases with the algorithm specified by Paul Viola and Michael J. Jones. We get some of non- faces which are classified as faces along with the faces. We tried to reduce those non-faces from the image and keep only faces. After face detection we control mouse movement with the coordinate of face return by the first phase. For mouse control we use pynput package of python. It helps to control the mouse cursor, also perform some activity, such as left/right/double clicking and changing mouse position.

This system is based on computer vision algorithm. Most vision algorithms have illumination issues. From the results, we can expect that if the vision algorithms can work in all environments then our system will work more efficiently. However, it is difficult to get stable results because of the variety of lighting and skin colors of human races.

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LIST OF ABBREVIATIONS

Short Name	Abbreviations
CCTV	Closed Circuit Television
GUI	Graphical User Interface
NN	Neural Network
OpenCV	Open Source Computer Vision
OS	Operating System
PC	Personal Computer
PCA	Principle Component Analysis
PIP	Python Installation Package
RGB	RGB color model