Design And Development Of Virtual Instrumentation System For Disabledusing Labview

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Abstract: *In real life people faces several physiological problems so hospitals should have improved version of measurement system. Now a days personal computers are easily available in low cost so that we can use this personal computer for the people who are suffering from this kind of physiological problem. This project is related to eye blinking which is helpful for the disabled people. There are many use of keyboard to operate computer to reduce this dependency hand gesture is an alternative way. Hand gesture recognition system is an alternative way which is interface and communicate to computer via person. This hand gesture system used for uneducated people who can operate keyboard by various types of symbol. This symbol like one finger denotes one alphabet from keyboard after that get the output to check whether it is correct or not through via voice. All this can be done by using LabView. The main aim is using virtual instrumentation design on LabView helps disabled people.*

Index tems: *Virtual instrument, eye blinking sensor, hand gesture recoginisation*

I.   Introduction

In last few years significant development of technology which is used in traditional system. Now a day's increase in computer work, easier way to operate computer best handling application by using graphic interface. So many advantages of virtual instrument technology which is used for physiological measurement system. The project is related to eye blinking and hand gesture recognition system. Hand recognition system is used for to interface computer and various biomedical and industrial system. Hand gesture recognition is used for blind people. Blind people uses hand gesture as an input and this input will be converted into specific alphabet. Hand gesture is basically movement of body part like fingers, arms, face, hand. And this movement of body part is used for communication purpose. This project ie eye blinking and hand gesture recognition is designed in LabView.

LabView is Laboratory Virtual Instrument Engineering Workbench. It is commonly used for Data Acquisition (DAQ), instrument control and industrial automation and variety of operating system (OSS), including Microsoft Windows, Linux, Unix. The latest version of LabView are LabView 2017 SP1 and LabView NXG 2.0. LabView includes extensive support for interfecing to devices, instruments, camera and other devices.

In eye blinking system image acquisition stores eye image and via iris segmentation has many features which is converted and stored in computer as computer language. After encoding, computer matches the feature with already stored image in the data base then it operates like on and off.

II.   Literature survey

The main aim of the work was to develop this pc based using Lab View in which Eye Blinking System and Hand Gesture Recognition was designed data acquisition amplified the image and displayed on the front panel. Eye blinking were visualized in Lab View there are limitations of some features and accuracy.

In designing Hand Gesture Recognition system using Lab View software ,this system is to identify all 26 alphabet, all 0 to 9 numbers and all symbols presented in keyboard and we get output through voice,. This system was developed in LabView via image processing on windows XP operating system.

In Lab VIEW software design of hand gesture recognition and eye blinking system has some feature like simple structure , low cost , adjustable circuit long service life and easy to use .

III. System Overview

The proposed system which is to be designed using LabVIEW requires to be interfaced by using eye sensor and eye blinking system and Digital camera for acquiring real time images for hand gesture using national instruments USB Data acquisition (DAQ) card.

Hand Gesture Recognition

Camera is optical device used for capture and storing the image. The working of camera is similar to the human eye. In image every frame is capture and handover to hand tracker. Already some images are stored in computer which is pre-define some size. The capture frame and pre-define image is compared and go through trajectory buffer.

Some movement of hand already stored in computer which is passes through segmentary in trajectory segment. It checks intensity, brightness, color, etc. Gesture classifier classified all this parameter and compared with stored gesture pre-definition after matching we get output of hand gesture recognition.
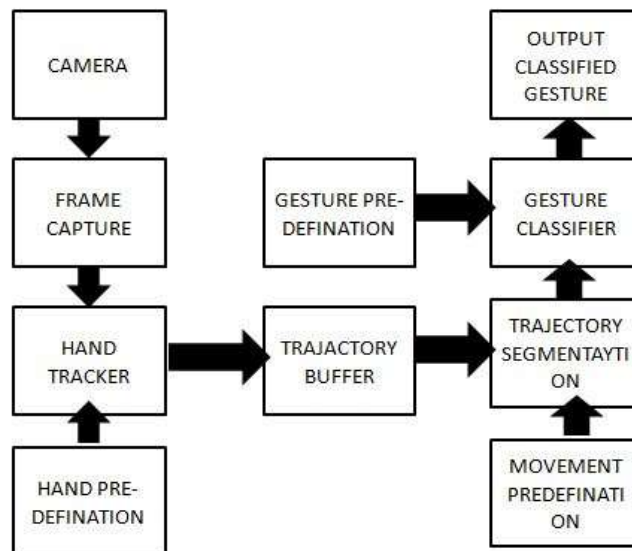
Eye Blinking System

In eye blinking system the image accusation capture image by camera and stored in computer the eye image then go to the iris segmentation. Iris recognition is most accurate as well as reliable in biometric identification system. The performance of iris recognition system depends on the process of iris from the eye image. This iris region convert into computer understanding language after encoding the main features are already stored in database. This encoding features are compared to the stored features in database. If both are matched then process will be ON or OFF.

BLOCK DIAGRAM FOR MOUSE CONTROL BASED ON EYE MOVEMENT
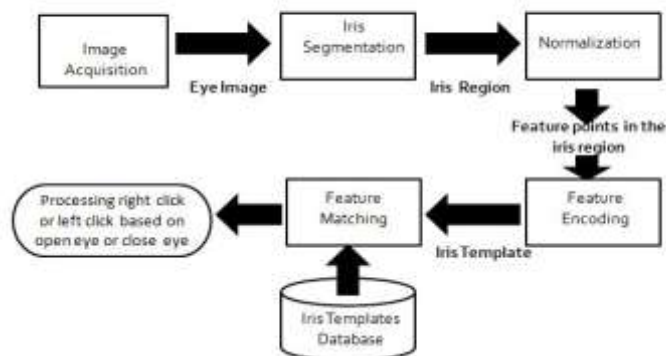
IV. Advantages

- Using the concept of gesture recognition, it is possible to point a finger so it will be type on screen and also output will get through voice.
- Eye blinking system used for blind people.
- To understand human body language hand gesture is a alternative way.

V. Justification for the research

Hand gesture Recognition gives interactive human machine interface and virtual environment due to much dependency on hardware device like mouse and keyboard operate a computer so without use of keyboard and mouse hand gesture is better alternative way to access computer applications. Due to so much used of hardware eye blink system is an alternative way to use of hardware so without mouse we can ON or OFF system.

VI. Objectives

1. Design virtual instrument for eye-blinking system.
2. To design virtual instrument on LabVIEW for hand gesture.
3. Eye recognition sensor for eye blinking system.
4. Interfacing computer with software which is LabVIEW using camera and DAQ.

VII.   Future Scope

- By using hand gesture control robotics machine.
- This hand gesture use for security authorization by sign as a password.
- New system can be developed can allow disabled people handle a computer by means of an eye operated mouse based on electroculography and videoculography using a web camera.
- EOG system which can allow to control curser move all window.
- Eye blinking system can use in vehicle to reduce accident.

VIII.   Application

- Communication aid for blind people.
- Hand gesture system used for uneducated system.
- In hospitals used to measure physiological parameter of the patients.

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