THE SMART WRIST BAND BASED HUMAN INTERFACE FOR PWD (PERSON WITH DISABILITY)

PROJECT REFERENCE NO.: 40S_BE_1585

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Keywords: Eye-blink sensor and cursor movement, voice to text application.

Introduction:

The proposed project for “A Smart Wrist Band based human Interface for PWD (Person with Disability)” With the advent of the information, there are ever-increasing demands for accessing computers and internet. Wrist band based applications are enabled like left and right mouse click for handicapped persons. This technology is intended to be used by disabled people. The Proposed project for Smart Wrist band based human interface for PWD (Person with Disability) pointing and scrolling are one of the most extensively used tasks in almost all computing applications. With the advent of the information, there are ever-increasing demands for accessing computers and the internet. The proposed of the project provides hand free interface between computer and handicapped person. This wrist band technology is intended to replace the conventional computer cursor movement for the use of the disabled person (Handicapped person) or a new way to interact with mouse.

This technology is intended to be used by disabled people who face a lot of problems in communicating with fellow human beings. It will help them use their voluntary movements, like eyes and hand movements: to control computers and communicate through customized software/hardware. People with severe disabilities can also benefit from computer access and take part in recreational activities, use internet or play games. The proposed algorithm tracks the motion accurately to control the cursor, thus providing an alternative to computer mouse.

Objectives:

Project for Smart Wrist band based human interface for PWD (Person with Disability) pointing and scrolling are one of the most extensively used tasks in almost all computing applications. With the advent of the information, there are ever-increasing demands for accessing computers and the internet. The proposed of the project provides hand free interface between computer and handicapped person. This wrist band technology is intended to replace the conventional computer cursor movement for the use of the disabled person (Handicapped person) or a new way to interact with mouse.

- Time dependent and reliable system.
- Hand movement control.
- Voice command computer interface.
- Effective indicator for user to point out the exact location of the cursor.
- Options selection with help of blinking eye.

**Methodology:**
- The wrist band based system includes following functionalities, to movement of the mouse with the advent of the information, there are ever-increasing demands for accessing computers and internet.
- Wrist band based applications are enabled like left and right mouse click for handicapped persons.
- This technology is intended to be used by disabled people.

**Materials:**

**Software components:**
Arduino- IDE, Android app, Windows7 OS.

**Hardware Components:**

**Block diagram:**

**Transmitter module:**

Fig 1: transmitter block diagram
Receiver module:

![Diagram of receiver block diagram](image)

Fig 2: receiver block diagram

Android Voice to Text App:

![Diagram of Android voice to text app](image)

Fig 3: Android voice to text app
Result and conclusion:

- Overall the project focuses on the fields of wireless communication and Embedded Electronics for hardware implementation.
- The project on “THE SMART WRIST BAND BASED HUMAN INTERFACE FOR PWD (Person with Disability)” has been successfully completed.
- On completion the same can be shown as a demo in real time environment.

Scope for future work:

- The speed of operation can be increased by using more powerful processor.
- Voice recognition and speech navigation can be added.
- Device can be made more compact.

References: