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HAND GESTURE RECOGNITION FOR VOCAL IMPAIRED COMMUNITY

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HAND GESTURE RECOGNITION FOR VOCAL IMPAIRED COMMUNITY

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Abstract:
Hand gestures are one of the most prevalent non-verbal and visual communication methods used by people with speech impairments all around the world. The current issue is that most people are unable to understand hand signals or turn them into spoken language quickly enough for the listener to comprehend. The major goal of this project is to provide a better solution for speech impaired persons by creating a glove that will help to eliminate or at least reduce the communication gap between speech impaired and non-speech impaired people. The Arduino Uno serves as the microcontroller in our prototype, which is connected to flex sensors and an accelerometer. for reading hand gesture, LCD display for displaying text output and a Bluetooth module for generating the voice output in mobile.

KEYWORDS: Hand gestures, Flex sensor, accelerometer, Arduino Uno,Text to speech, Bluetooth

1. Introduction:

It was created in response to the necessity for the development of an electronic device that can translate sign language into voice, allowing silent populations to communicate with the broader public. The data gloves are regular textile driving gloves with flex sensors running the length of each finger. Dumb persons can use the gloves to make hand gestures, which are then translated into speech so that normal people can comprehend them. In sign language, a gesture is a distinct movement of the hands that creates a specific shape. The goal of this project is to break down communication barriers. One of the richest sources of tactile sensory data is the hand, which allows for precise and intricate manipulation. Human robot interaction systems that leverage the hand's sensitive manipulation ability have been actively investigated for rehabilitation, virtual reality, entertainment, tele-operation, power support, and other applications. Measurement of unrestricted hand motion should come first in the development of such devices. Hand motion measuring systems have yet to be completely utilised.

Hearing and speech loss can make people feel alone and lonely, which can negatively impact their social and professional lives. They use sign language to express themselves. Sign language is a well-structured code gesture in which each gesture has a specific meaning. For deaf people, sign language is their only form of communication. Many techniques have been developed as science and technology has progressed, not only to reduce the problem of deaf and dumb people, but also to apply it in various industries. Instead of using voice or sound patterns, sign language relies on physical communication and body language to deliver its meaning. This mostly entails a combination of hand forms, orientation, and movement. Sign Language is used not only by the deaf, but also by those who can hear but cannot speak.

We are going to design a system that will interpret sign language and have a playback voice module at the output so that we can Hearing and speech loss can make people feel alone and lonely, which can negatively impact their social and professional lives. They use sign language to express themselves. Sign language is a well-structured code gesture in which each gesture has a specific meaning. For deaf people, sign language is their only form of communication. Many

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