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Sign Language and Hand Gesture Recognisation using CNN for Deaf and Dumb

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ABSTRACT

One way to communicate non verbally in sign language is by gesture. The most frequent users are those who are deaf or dumb and cannot talk and hear, making it difficult for them to converse with one another or with other people. It can be challenging for average folks to comprehend precisely what the other person is attempting to say. Many people throughout the world have created many sign language systems, however they are not adaptable or economical for the end users. Our project intends to create a system that can translate a person's gesture into text and voice as well as human hearing.The ability of this system to automatically understand sign language will enable deaf and dumb people to interact with hearing people and each other more effectively. This project is designed to assist those with unique needs in having equal value in society.

1. INTRODUCTION

Nowadays, new technology that enhances our way of life and makes our lives simpler is constantly being discussed. Technology has completely changed how people live. The human race has given technology a gear, and they are not in the mood to shift the pedals out of that gear. Numerous technology-related fields, including artificial intelligence, smartphones, and others, are heavily researched. This research produced fresh discoveries that made life easier for everyone. For Deaf and Dumb people, however, very little research has been done. They feel uneasy because of this enormous struggle and prejudice in society. Deaf and dumb persons feel as though they cannot communicate because of this, and as a result, they are unable to convey their emotions. Compared to other industries, this one has received less attention. The communication gap between the unique person and the average person is one of this special person's main challenges. It is usually difficult for Deaf and Dumb persons to converse with regular people. To keep a line of communication, open with the rest of the population, the HGRVC (Hand Gesture Recognition and Voice Conversion) technology locates and tracks the hand motions of the dumb and deaf. Using a web camera, hand gesture detection is possible. Pre-processing is then used to resize the images to their original dimensions. Creating a system that can translate hand motions into text is the goal of this project. The goal of this project is to upload the images to the database, which will the images, and turn them into text. The detection process involves watching hands move. The technology provides text-based output that aids in

bridging the communication gap between the deafmute and the hearing population.

2. PROPOSED SYSTEM

Deaf and dumb persons feel as though they cannot communicate because of this, and as a result, they are unable to convey their emotions. To keep a line of communication open with the rest of the population, the HGRVC (Hand Gesture Recognition and Voice Conversion) technology locates and tracks the hand motions of the dumb and deaf. Using a web camera, hand gesture detection is possible. Pre-processing is then used to resize the images to their original dimensions. Creating a system that can translate hand motions into text is the goal of this project. The goal of this project is to upload the images to the database, which will match the images, and turn them into text. The detection process involves watching hands move. The technology produces text-based output, assisting in closing the communication gap between the deafmute and the hearing population.

3. ARCHITECTURE

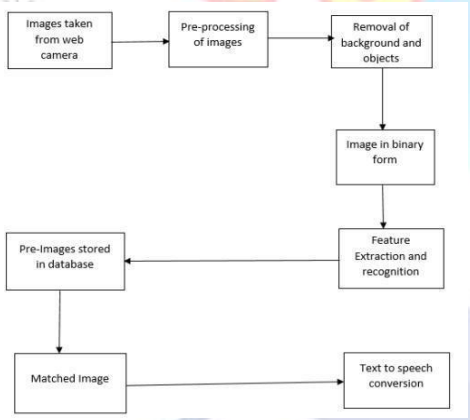

Fig 1:An Overview of System Architecture

Outputs:

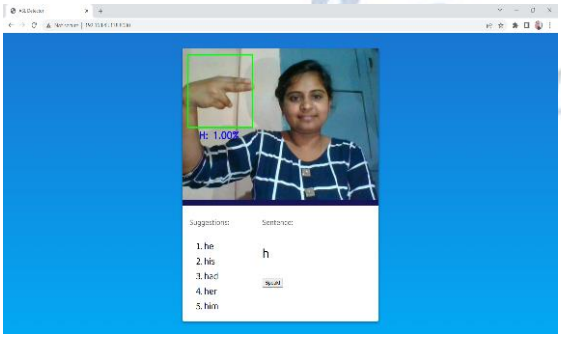

Fig 2:Gesture Recognised as H and Gestures Related to H are displayed

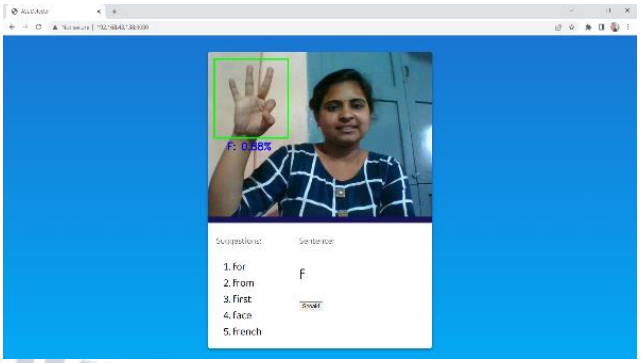

Fig 3:Gesture Recognised as F and Gestures Related to F are displayed

4. CONCLUSION

This project's main output is a web application that translates hand motions into text and audio. The captioned text and audio assist the hearing impaired and Engage in conversation with others. The website application created collects photos and converts them into speech and text. In addition to this translation, suggestions are presented to help people compose sentences and communicate more effectively.

Conflict of interest statement

Authors declare that they do not have any conflict of interest.

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