

SWE3999 – TECHNICAL ANSWERS FOR REAL WORLD PROBLEMS

Done By:

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ABSTRACT:

Sign language is a visual language that deaf and dumb people use as their first language. Sign language, as opposed to acoustically transmitted sound patterns, employs body language and physical communication to convey a person's thoughts. It can be used by someone who has difficulty speaking, or by someone who can hear but cannot talk, and it can also be used by non-hearing handicapped individuals to communicate with hearing disabled people. Access to a sign language is critical for a deaf person's social, emotional, and linguistic development.

Deaf and hard of hearing people from India use Indian Sign Language to communicate by making signs with different parts of their bodies. ISL signs are divided into three categories: one handed, two handed, and non-manual signs. One handed and two handed signs are sometimes known as manual signs since the signer makes the signs using his or her hands to transmit information. Non-manual signals are produced by altering body position and facial expressions.

OBJECTIVES:

With the introduction of new technologies such as web applications, machine learning, and natural language processing, our research will try to bridge the gap between these Deaf individuals and regular people. The primary goal of this project is to provide an interface that takes audio/voice input and transforms it to matching Sign Language for Deaf individuals. It is accomplished by integrating hand forms, orientation, and movement of the hands, arms, or body at the same time.

The interface operates in two stages, first converting audio to text using voice to text API (python modules or Google API), and then representing the text using Parse Trees and using Natural

Language Processing semantics (NLTK particularly) for lexical analysis of Sign Language Grammar. The work is based on the norms of ISL (Indian Sign Language) and refers to the grammar standards of ISL.

SOCIETAL IMPACT:

There are roughly 5.07 million persons in India who are deaf. More than a third of them are under the age of 20, with the remainder falling between the ages of 20 and 60. Because these people are typically unable to talk correctly, they interact with others using sign language. Because sign languages lack a well-defined structure or grammar, these signs have no or very little acceptance outside of the limited community of these differently abled persons. Communication is difficult for hearing-impaired persons in public areas such as train stations, bus stops, banks, and hospitals because a hearing person may not comprehend the sign language used by the deaf person to communicate. Furthermore, a hearing person cannot transmit any message to a deaf person since he or she may not be familiar with sign language. Language translation is required to facilitate communication between the deaf and non-deaf communities. Communication is difficult for the deaf people in common areas such as railways, banks, and hospitals due to their inability. To assist them communicate more effectively with the rest of the world, a system that converts text to Indian Sign Language and vice versa is required. These systems will improve the community's standard of living. Sign languages have not received as much attention as spoken languages, and there is still much to learn about them. is the notion of individuals showing up at a predetermined place, either individually or as a group, for a previously arranged event.