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TRANSALATION OF REAL TIME VOICE TO SIGN LANGUAGE

MADHIRE SAI CHANDU

Department of Computer Science & Engineering

Kakatiya Institute under Kakatiya University

Warangal (Telangana State), India

Abstract: Language is tool used by everyone to put forward their ideas, show their feelings and helps them to communicate with other fellow living beings. Unfortunately not everyone is blessed with this gift and for them it is difficult to communicate with others. Therefore, sign language was developed for helping hearing and listening impairment people i.e, deaf and dumb people this is the native language for them. Not many are known by this language and hence, increasing the difficulty of interaction with normal people. Sign language certainly improves the exchange of information of deaf and dumb. This project is aimed for the improving the interaction by translating the speech which is lively spoken into the intended sign language.

Keywords: Speech to text, Text to sign language, Speech recognition, NLP.

1. INTRODUCTION

India is one of the densely populated country with 138 crore people living in it. It is also a diverse country where people follow different cultures and speak various spoken languages. According to a study by World Health Organization from the total population of India sixty three million people are having the disability of hearing and speaking out of which five million are children. People can be subjected to hearing and speaking impairments due to numerous reasons including immature development of body parts, damage at any point of time or due to any disease at any part of hearing mechanism. Children learn how to speak while watching and hearing people around them speak but it can be a difficult task to those children who are born with the impairments.

In a country like India, sign language should be given more importance. But contrary to that is the status of sign language in India, there are no proper educational facilities available here that could spread awareness about sign language. There are only 700 specialized schools and about 250 certified sign language trainers. Indian Sign Language (ISL) is widely spoken India but it is not recognized by government of India, this where we lag behind other countries like Canada, Sri Lanka, Zimbabwe, and America etc. One of the neighboring countries of India that is, Nepal has already recognized sign language as a medium of by which education can be provided to the

disable people. In addition to this there has been no research work done on ISL than as much as it was done on other sign languages of countries like America (ASL) or British (BSL).

2. METHODOLOGY

Determining the input that is voice from the user, preprocessing will be done on the voice to remove unwanted noise, obtained speech is matched with sign language gallery set and respective sign language is displayed.

Flow Chart

Typically it contains three steps which include;

1. Collecting input from the user through the microphone.
2. Match sign language if not present separate each letter.
3. If word is present it shows plays sign language of the word.
4. If not present then hand gesture of each letter is displayed.

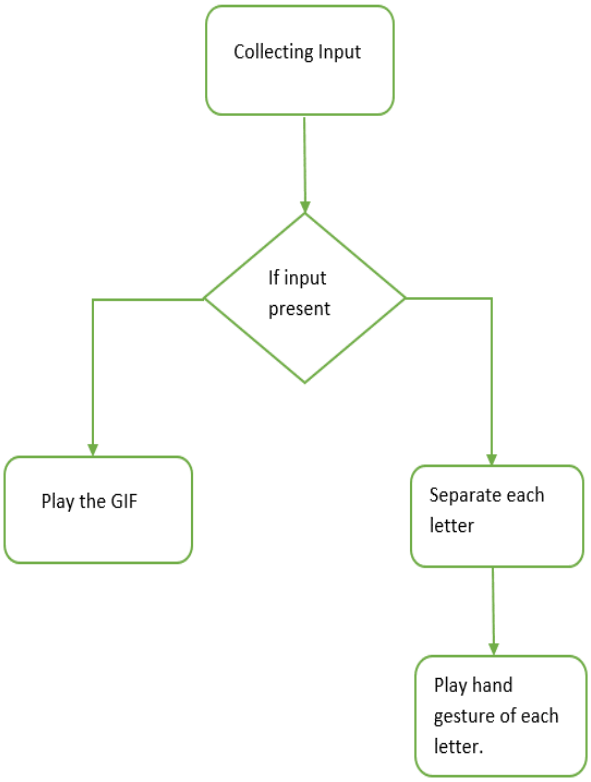

Figure 1: Flow Chart of methodology

3. IMPLEMENTATION

The system takes the input voice from the user and recognizes it using google speech API, then it is matched with a set of defined sign language gestures if it is present then it is displayed, if it is not present then input is divided into sequence of letters and hand gesture of each letter is displayed.

i. Translator interface:

Figure 2: Project front end

ii. System waits for user input.

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I am Listening
You Said: hello
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Figure 3: Input ("hello")

iii. As the word is hello, sign language of "hello" is displayed.

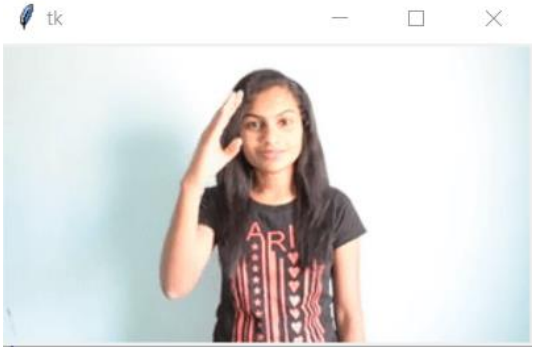

Figure 3: Sign language of "hello"

iii. Another input

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I am Listening
You Said: go
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Figure 4: Input ("go")

iv. Letter g.

Figure 5: Hand gesture of letter 'g'

v. Letter o.

Figure 6: Hand gesture of letter 'o'

6. CONCLUSION

From this project, we can share the importance of sign language, the importance of a sign language translator in our day to day lives. This not only helps deaf and dumb people but also the normal human beings as they could also interact with disabled people. This sign language translator can be used in various fields ranging from educational institutions to airports. It has a wide range of application, involving all age group people who wants to interact using sign language, this mitigates the difficulty of interaction with hearing impairment people. Hence, by this we can provide them an opportunity to be able to move along with other fellow peers in the modern

technological world where all can collectively work for the betterment of society.

5. FUTURE SCOPE

Through this project we were successfully able to translate speech to sign language. Hence we can widen the range of the application of this translator by implanting it in various other fields making a part and parcel of society. In similar way as Doordarshan we can also implement in other regular news channels. We can also add this feature in YouTube videos allowing the disabled people also to understand for who it might feel like watching in their native language.

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