

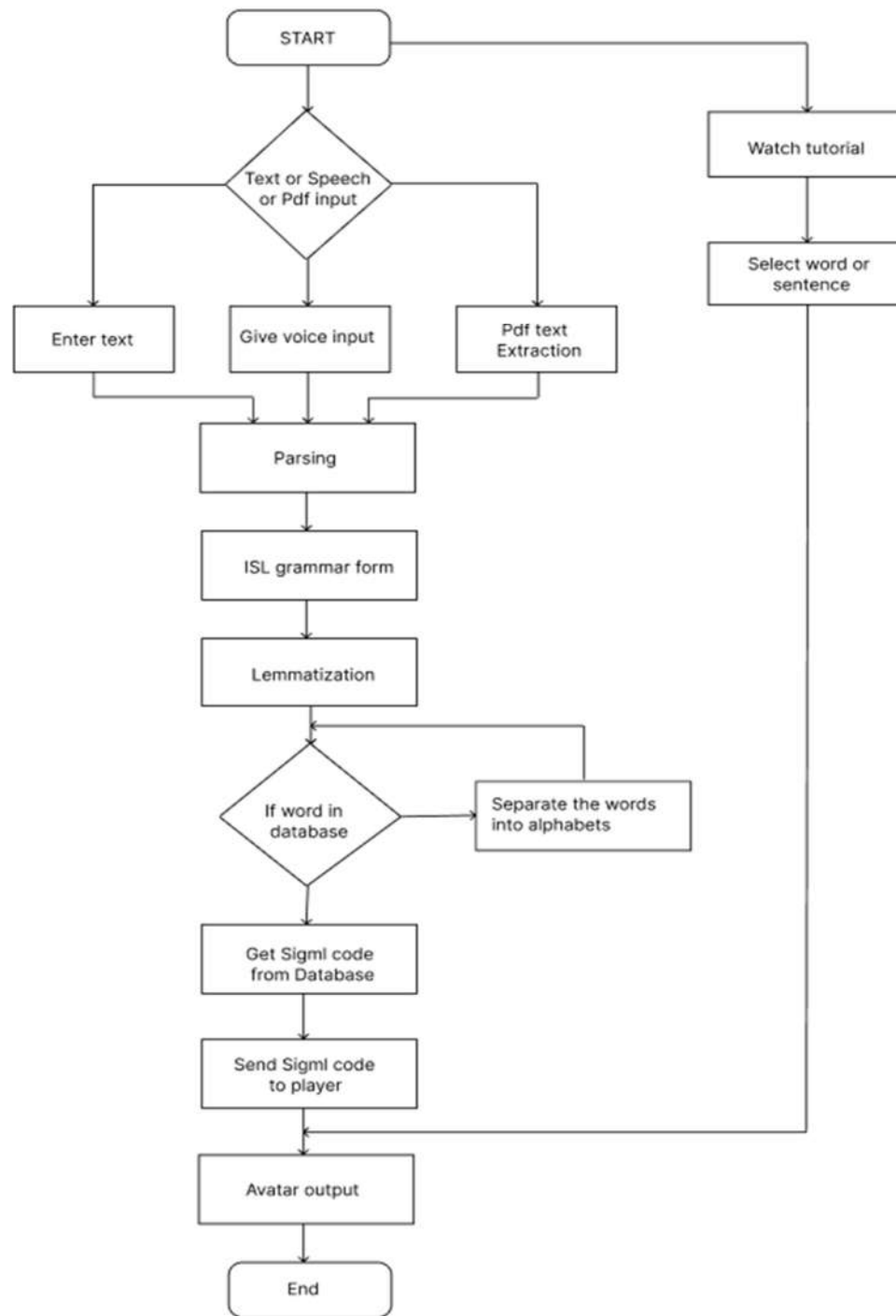
# ABSTRACT

Sign Language is a natural way of communication for people with speaking and hearing disabilities. In India, 63 million people suffer from significant auditory loss. For hearing-impaired people in India, Indian Sign Language (ISL) is a well-developed and standard mode of communication. Although sign language is used to bridge the gap of communication for hearing or speech impaired there are no efficient models which converts text or speech to Indian Sign Language.

Our project intends to develop a translation system that includes a parsing module that converts input sentences into phrase structure grammar representations, which are then applied to Indian sign language grammar rules. Translation of one spoken language to another spoken language is a complex task if both the language has different grammar rules. Our approach is to directly communicate with people having hearing impairments and speaking disability by means of a software as an interface. It is also a learning platform for those who are not well versed with the Indian Sign Language. The system can also be used to convert Kannada language into actions.

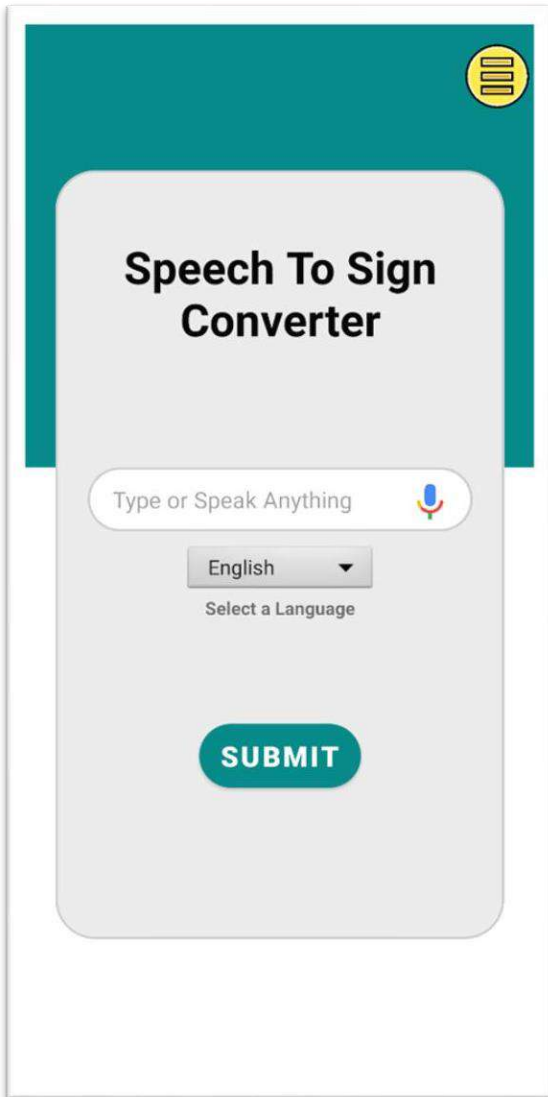
The application takes input in the form of speech, text. For generation of sign language from input text, a system has been developed to convert the root words of the given sentence to its SiGML form, to make it available for animation by the avatar. We create the signs through HamNoSys, is generated corresponding to the ISL words and is further converted to XML form known as SiGML. The HamNoSys generation system includes basic hand movements.

We have attempted to create a model that will allow people with disabilities to express themselves distinctly, which will help them blend with the rest of the world without any difficulty. Our proposed project model will successfully convert input into a sign animation. The words in the ISL are less, so many improvements can be made by adding new words to the dictionary. Advanced version of the project may have multiple language inputs.

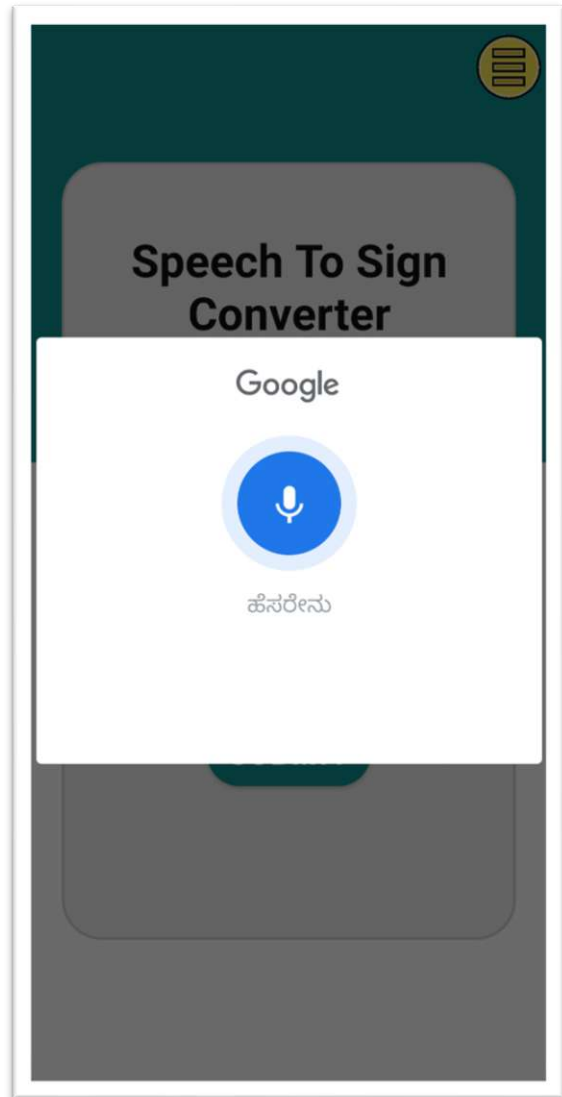


**Fig. 3.3 System Flow diagram**

## APPENDIX



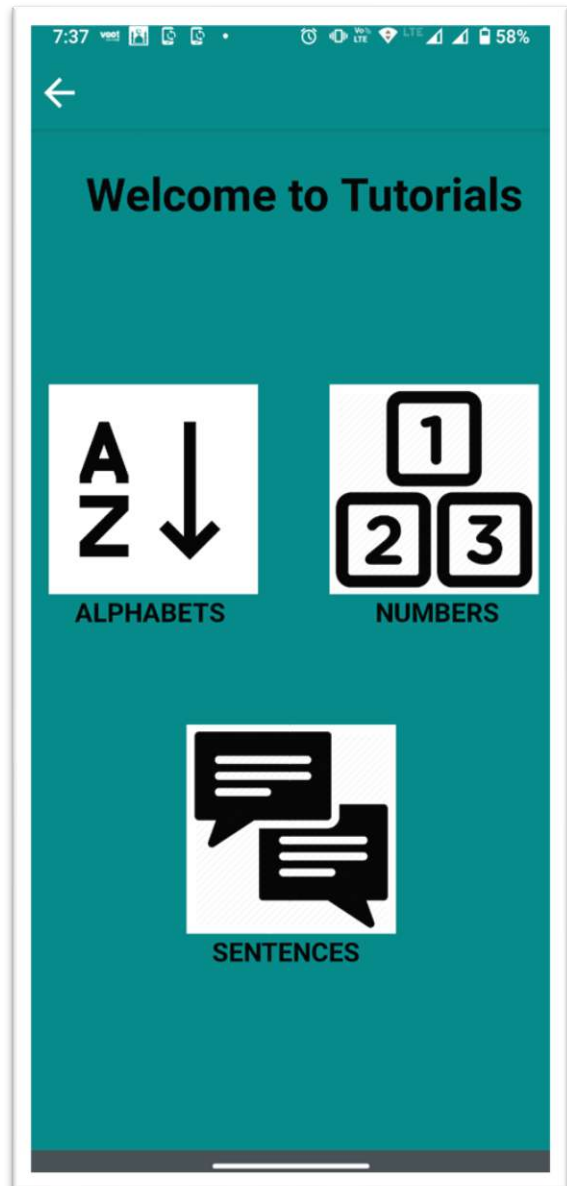
**Fig 1 Home page**



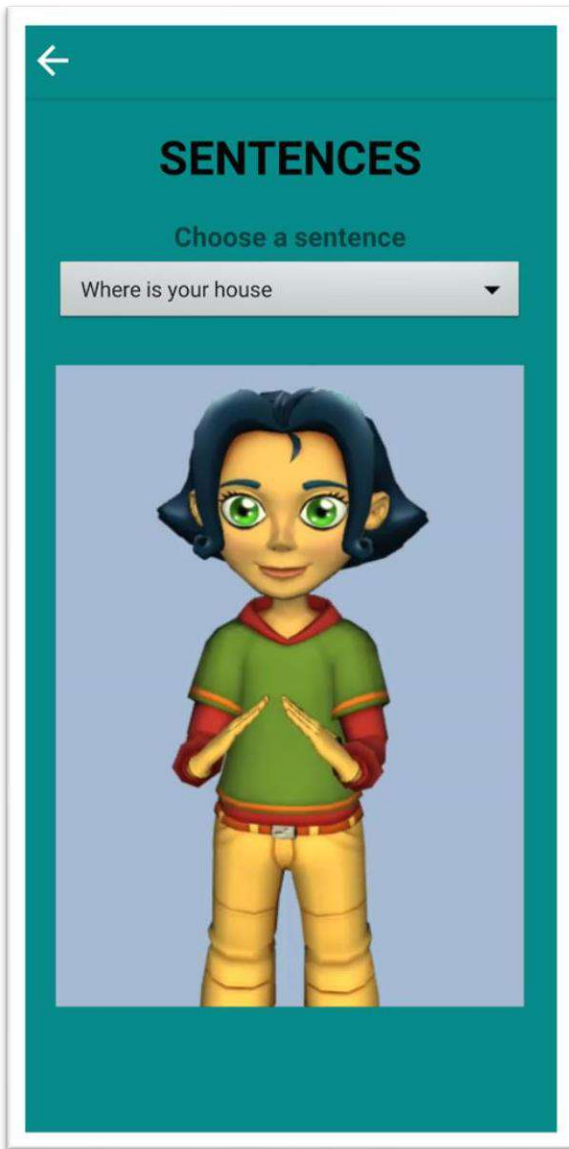
**Fig 2 Google API Translator**



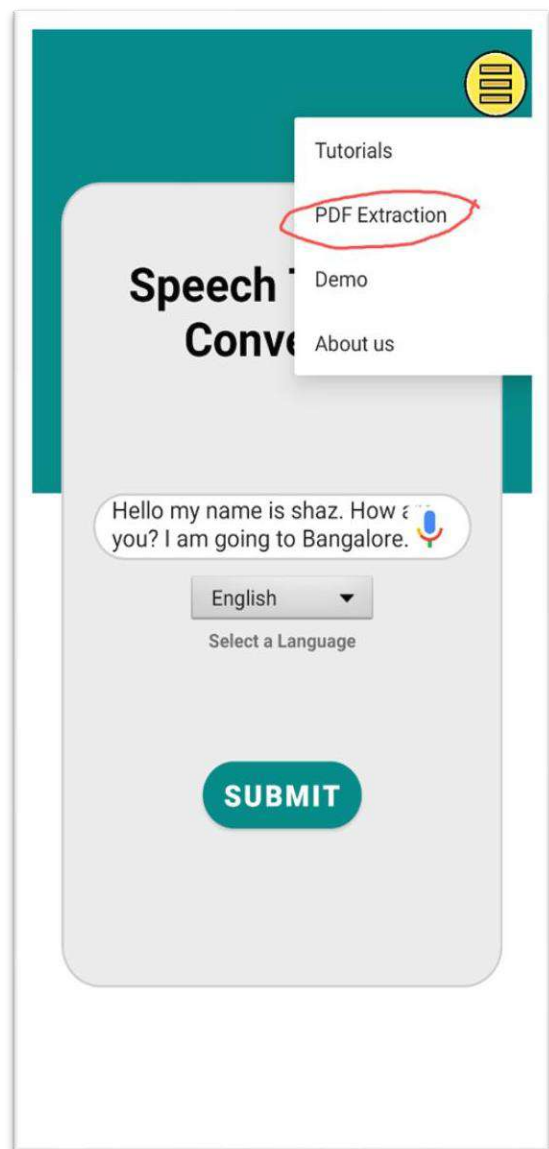
**Fig 3 Output Page**



**Fig 4 Translator Page**



**Fig 5 Sentence tutorial page**



**Fig 6 PDF extraction menu**

## CHAPTER 6

### CONCLUSION AND FUTURE SCOPE

Information currently available online is provided in written form, which is not of easy access to Deaf people. The ideal method for displaying information to the Deaf community would be through their sign language. An accessible approach to create content in Sign Language is through the transcription of signs into HamNoSys, followed by the proper animation by an avatar. Converting from English grammar to ISL grammar is a complex process and to get the avatar as output from it which can only be done after learning sign language which has to be converted to its respective HamNoSys for which SiGML code has to be written and stored in the database for different words. The major components of the system are conversion module (converts the English sentence to ISL sentence based on the grammatical rules), Elimination module (eliminates the unwanted words from the ISL sentence), and Animation module (converts the ISL sentence to synthetic animation). We have included google API translator that can translate the speech from Kannada to English and is sent through the parser. Presently we have included 800 words in the database. To understand the action of the words we have referred several research papers and videos that is recommended by the government for deaf and dumb community.

Our project has achieved everything we had planned fairly well. We have created this project so that people with disable people can blend with rest of the world without any difficulty. In future we can try adding new words to the dictionary as the ISL words are less. Apart from these features we could also add a new feature that would let user to input a sign and get the corresponding text or speech back as a result. This would enhance the communication in both the ways. Advanced version of the project may have multiple language inputs.