AUDIO TO SIGN LANGUAGETRANSCRIBERUSING NLTK AND MANCHINE LEARNING

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ABSTRACT

Sign Language is the only means of communication for deaf and mute people. But many normal people do not know sign language. Thus, it is difficult for the people who speak sign language to communicate with those who do not speak that language without an interpreter. Deaf people always miss out the fun that a normal person does, may it be communication, playing computer games, attending seminars or video conferences, etc.Communication is the most important difficulty they face with normal people.The aim of our project is to develop a communication system for the deaf people, which converts this audio recording message into text and displays the relevant Indian Sign Language images or GIF which are predefined. This project helps the communication between normal and deaf people gets easier.In this we use different techniques such as Natural language tool kit and Natural Language processing.

KEYWORDS: speech-recognition, speech-to-text, machine translation, natural-language-processing, python3.

I. INTRODUCTION

It is said that Sign language is the mother language of deaf people. This includes the combination of hand movements, arms or body and facial expressions. There are 135 types of sign languages all over the world. Some of them are American Sign Language (ASL), Indian Sign Language (ISL), British Sign Language (BSL), Australian Sign Language (Auslan) and many more. We are using Indian Sign Language in this project. This system allows the deaf community to enjoy all sort of things that normal people do from daily interaction to accessing the information. This application takes speech as input, converts it into text and then displays the Indian Sign Language images or GIF..

- The front end of the system is designed using Easy GUI
- Speech which is taken as input through microphone uses PyAudio package.
- The speech is recognized using Google Speech API.
- The text is then pre- processed using NLP (Natural Language Processing).
- Finally, Dictionary based machine translation is done.

Sign language is communication language used by the deaf peoples using face, hands or eyes while using vocal tract. Sign language recognizer tool is used for recognizing sign language of deaf and dumb people. Gesture recognition is an important topic due to the fact that segmenting a foreground object from a cluttered background is a challenging problem.

II. METHODOLOGY

NATURAL LANGUAGE TOOLKIT

Our objective is to help people suffering from the problem of hearing. There have been many projects done on the sign languages that convert sign language as input to text or audio as output. But audioto sign language conversion systems have been rarely developed. It is useful to both normal and deaf people. In this project we introduce new technology that is audio to sign language translator using python. In this we are using Natural Language Toolkit.Natural languageprocessingis a field that focuses on making natural human language usable by computer programs. Natural Language Toolkit, is a Python package that you can use for NLP. A lot of the data that you could be analyzing is unstructured data and contains human-readable text.Natural language tool kit supports classification, tokenization, stemming, tagging, parsing, and semantic reasoning functionalities,these functions helps to find to the words which are present in data set and also help to find

Suitable words so that easy fetching of videos take place.
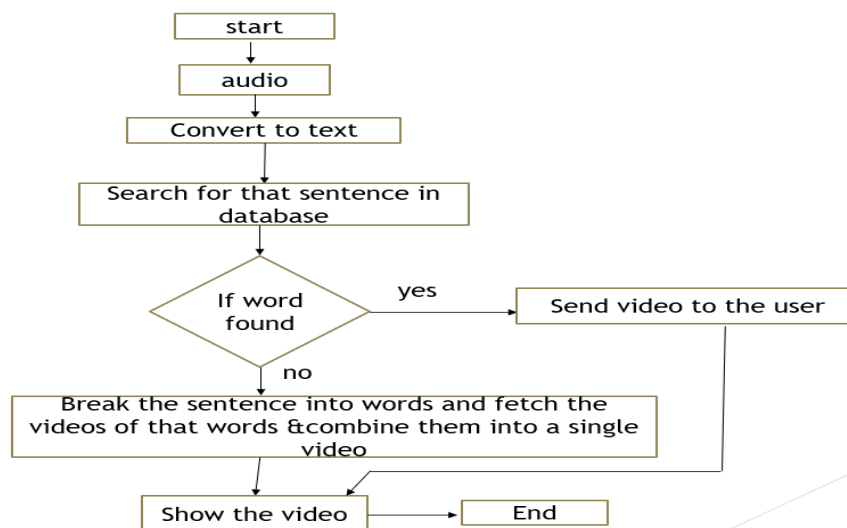
ARCHITECTURE:

In this module user will register with application and login with valid name and password and view all features like speech to text and sign language prediction.In this module google speech to text conversion library is used to convert voice to text and data is processed to next step for NLTK processing and text is displayed to user.In this module text is pre-processed by removing stop words and collect required words and send to next step to get required stored video based on that key word from system.Based on input from NLTK module text related videos are processed from the system and displayed to user when submit button is clicked.

III. RESULTS AND DISCUSSION
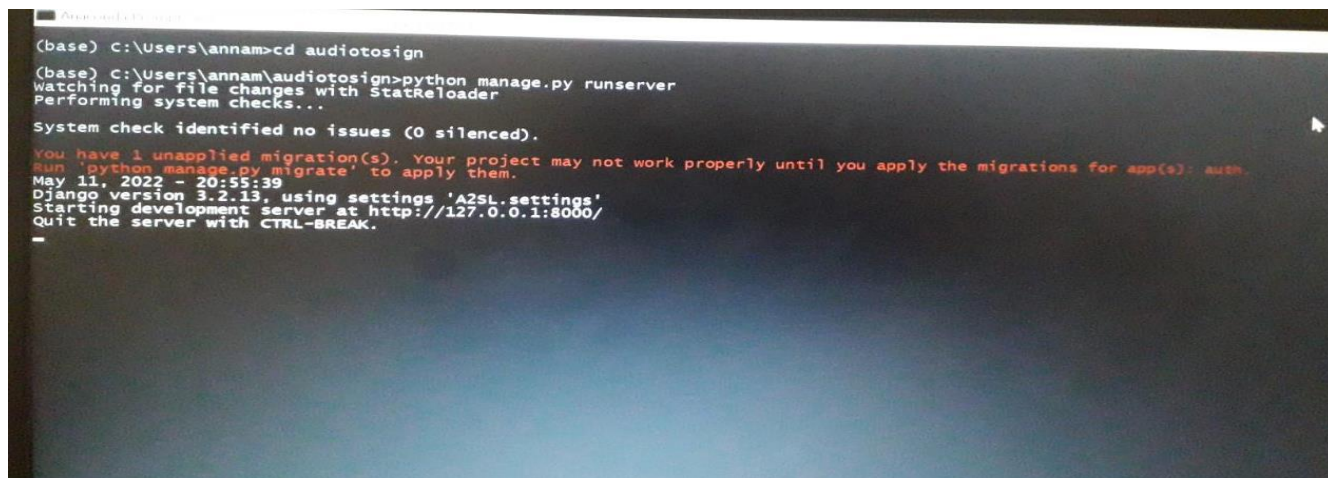
open anaconda prompt from search and type
conda activate tf (enter)
And again type
cd audiotosign(enter)
Type python manage.py runserver
you will get ip address copy and paste in chrome website will open(http://127.0.0.1:8000
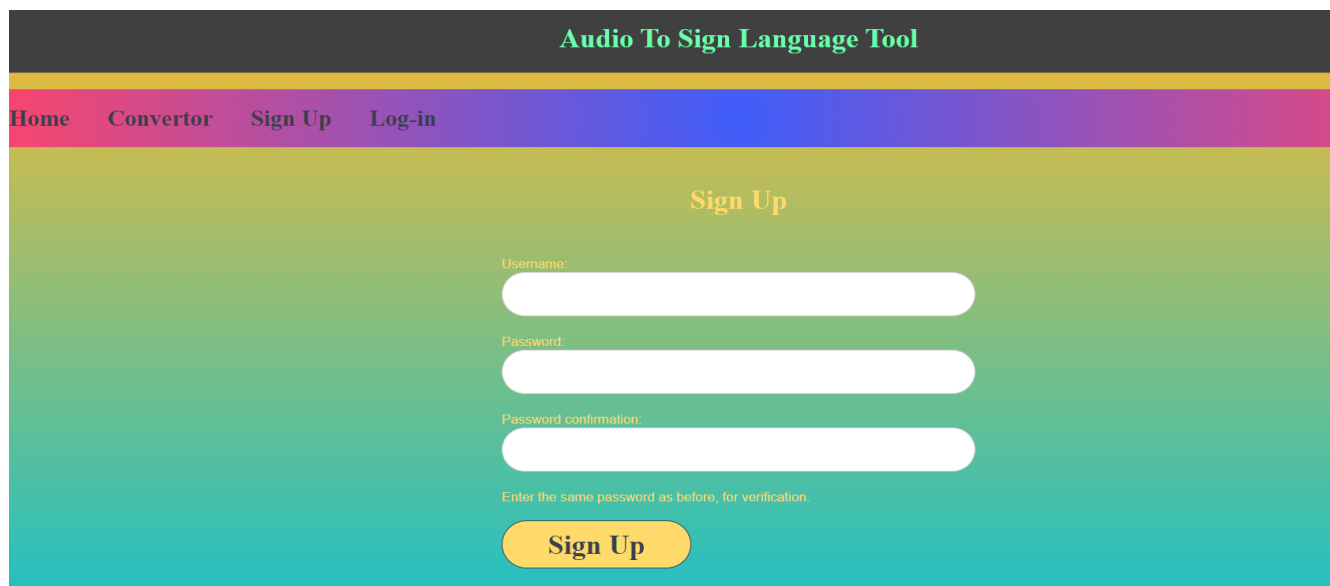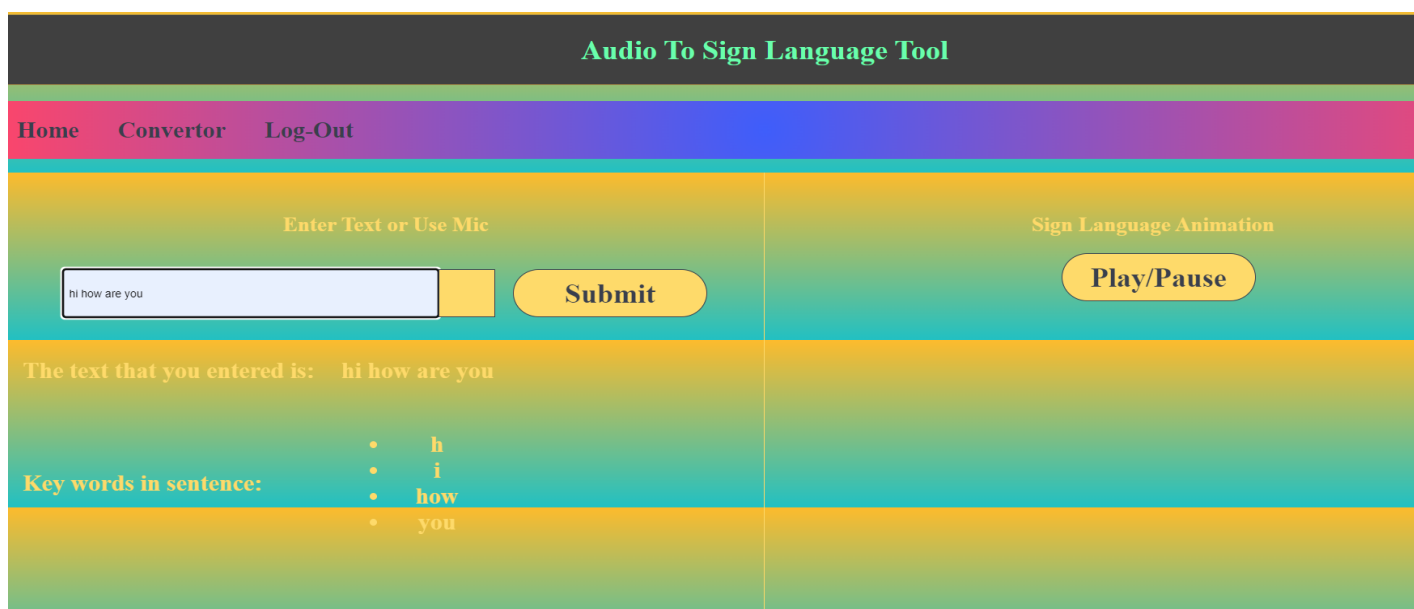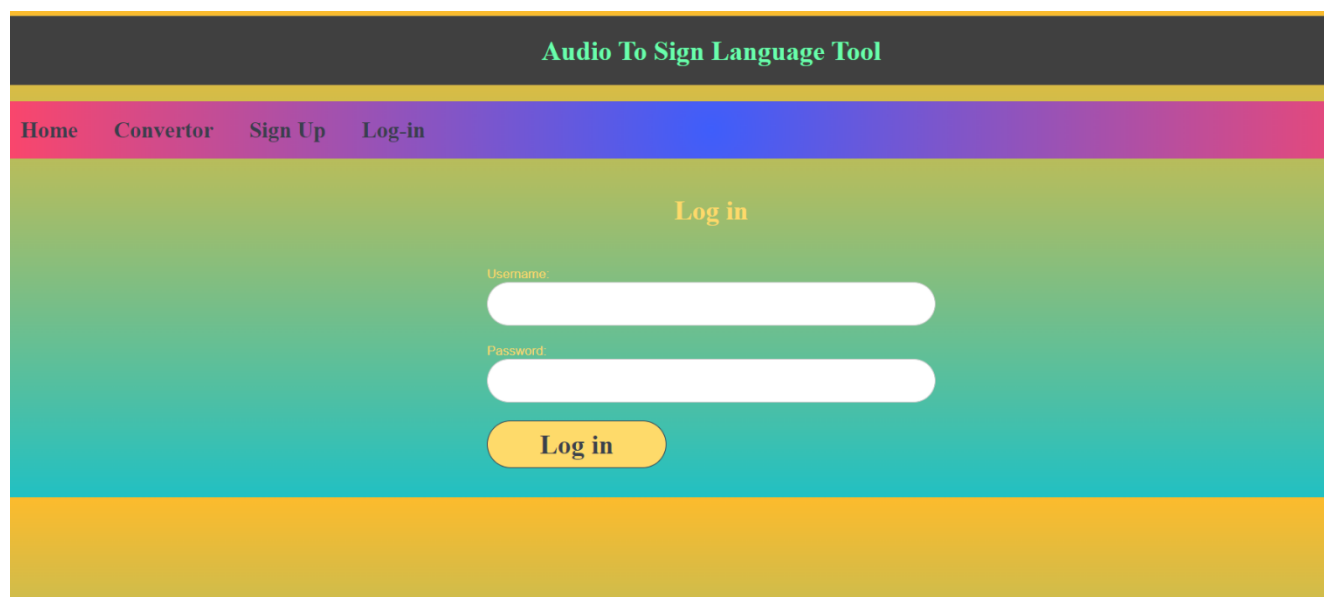

Figure 1:COMMAND PROMPT

Figure 2: LOGIN PAGE

Figure 3: SIGN UP PAGE

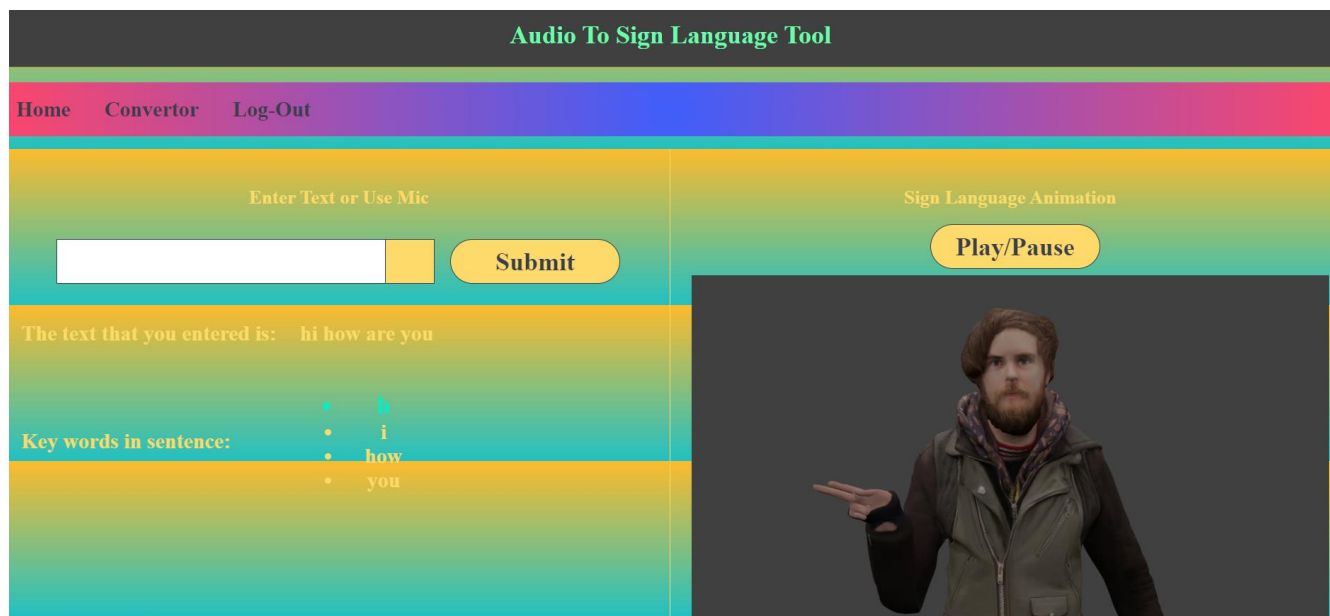**Figure 4:** OUTPUT PAGE IN WHICH CONVERSION OF AUDIO TO TEXT
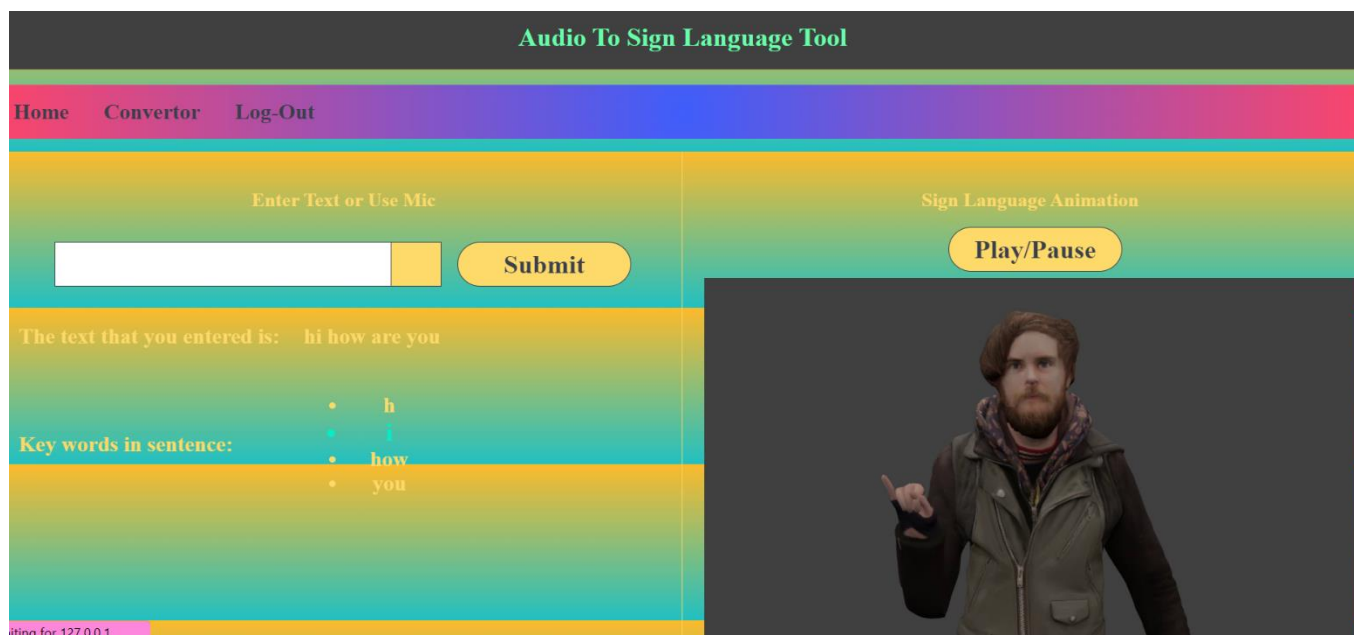
Figure 5: ANIMATION PAGE
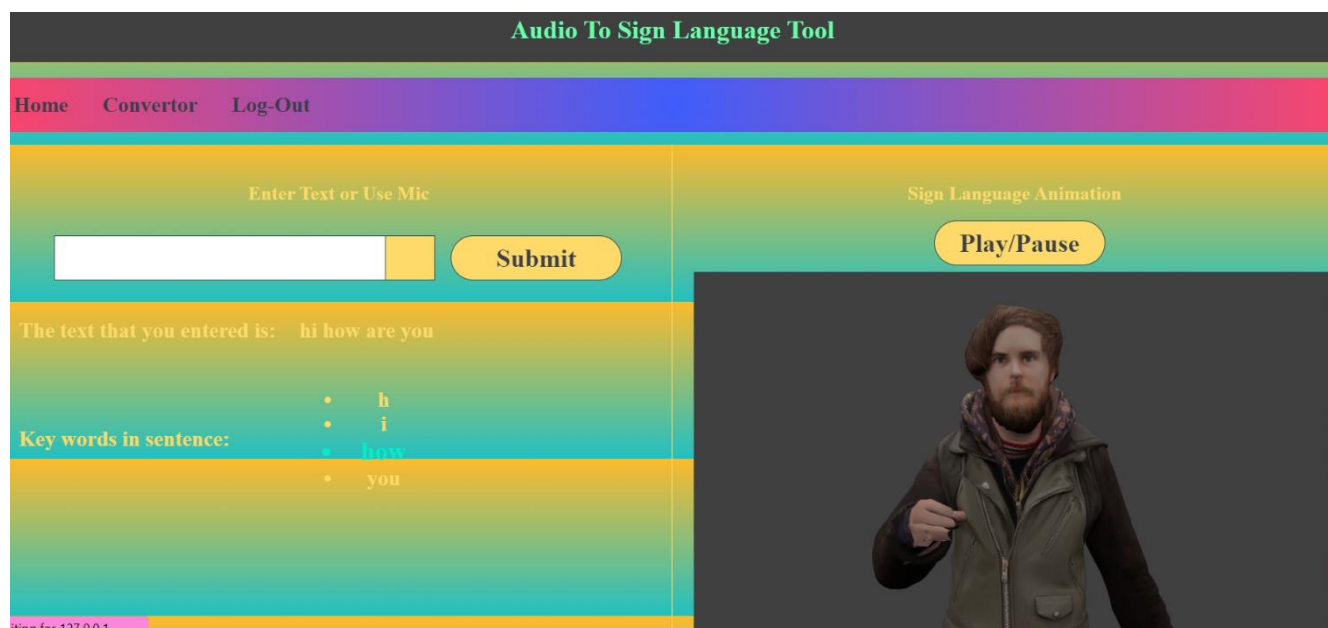

Figure 6: ANIMATION PAGE
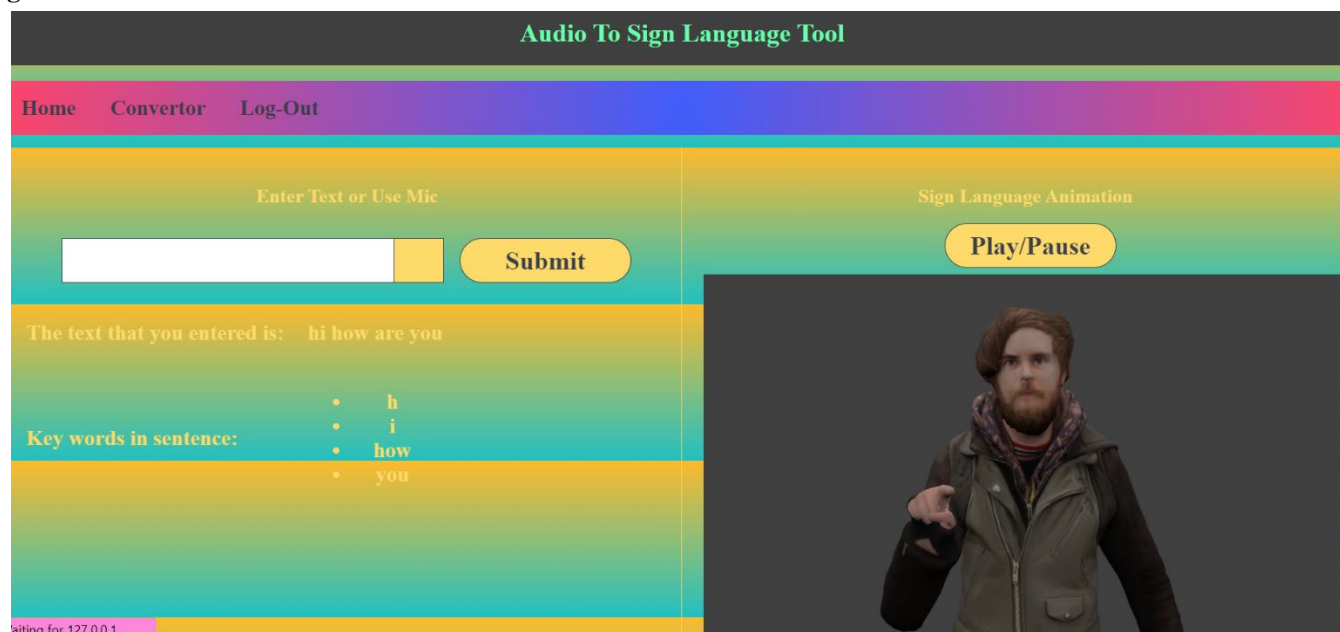
Figure 7: ANIMATION PAGE

Figure 8: ANIMATION PAGE

IV. CONCLUSION

Sign language translator is very useful in various areas. In schools, colleges, hospitals, universities, airports, courts anywhere anyone can use this system for understanding of a the sign language to communicate. It makescommunication between a normal hearing person and a hard to hearing person easier.Understanding the requirements needed by the impaired community and finding a solution to them in making a difference.Toimprove the physical and mental well-being of the specially abled people and improve their overall quality of life .

V. ACKNOWLEDGEMENTS

VI.REFERENCES

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