

Multilingual Speech Transcription and Translation System

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Abstract: *This project implements a multilingual speech recognition and translation system using Python. The system leverages libraries such as `pygame` for audio playback, `gTTS` for text-to-speech conversion, `speech_recognition` for capturing and recognizing spoken language, and Machine Translation model for translating text between languages. Users interact with the system via a Streamlit-based web interface, where they can select the input and target languages and control the start and stop of the translation process. The program can auto-detect the input language if the user chooses, and it provides real-time feedback by displaying the recognized text, translating it into the chosen target language, and converting the translated text into speech.*

At the core of the system is a continuous loop that listens for speech input through the microphone, processes the audio to recognize the spoken words, and then translates the recognized text into the desired language. The translated text is not only displayed but also spoken aloud using the text-to-speech functionality. The interface is user-friendly, with clear indications of the current status (listening, processing, recognized text, translated text) and handles errors gracefully, providing feedback in case of issues. This project demonstrates a practical application of speech recognition and translation technologies, offering a seamless and interactive multilingual communication tool

Keywords: Multilingual speech recognition, translation system, Python, gTTS, speech_recognition, Machine Translation model, Streamlit, web interface.