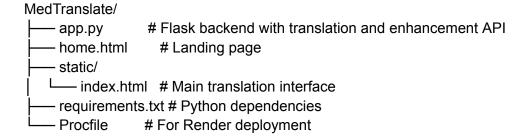
MedTranslate - Healthcare Translation Web App

Overview

MedTranslate is a web-based healthcare translation application for real-time multilingual translation of patient-provider conversations. Users can speak in one language, see a live transcript, and receive enhanced and translated text with audio playback. The app uses Generative AI for transcription, translation, and optional grammar and medical text enhancement.

File Structure



Key Scripts

- app.py: Handles routes (/, /languages, /process_text), loads Hugging Face models, caches models for faster requests
- home.html: Landing page with Start Translating button
- static/index.html: Core interface with language selection, voice-to-text recording, transcription, enhancement, translation display, and audio playback; uses Web Speech API

Al Tools Used

- Hugging Face Transformers: AutoTokenizer and AutoModelForSeq2SeqLM
- MarianMT models for translation
- T5-based model for English grammar and medical enhancement
- PyTorch backend
- Web Speech API for speech recognition and audio playback

Security Considerations

- CORS configured via Flask-Cors
- No user data is stored; processing occurs in memory
- Input validation prevents empty text or unsupported languages
- Models cached in memory with fallback if unavailable

Python Dependencies

Flask==2.3.4 Flask-Cors==3.0.11 torch==2.2.0 transformers==4.34.0 sentencepiece==0.1.99 protobuf>=4.23.0 tokenizers==0.13.3 numpy==1.25.2 tqdm==4.65.0

Note: Python built-in logging used

Deployment on Render

- 1. Procfile content: web: gunicorn app:app
- 2. Push repository to GitHub, connect Render
- 3. Use Python 3.11 or compatible version
- 4. Build command: pip install -r requirements.txt
- 5. Start service and test via live URL

Usage Instructions

- 1. Open landing page, click Start Translating
- 2. Select input and output languages
- 3. Click Start Speaking and speak naturally
- 4. Click Stop to finish recording
- 5. View: Original transcript, Enhanced text, Translated text
- 6. Click Speak Translation for audio playback
- 7. Repeat as needed

MedTranslate is designed for secure, real-time healthcare translation with Al-powered enhancements."