

Sma3ny

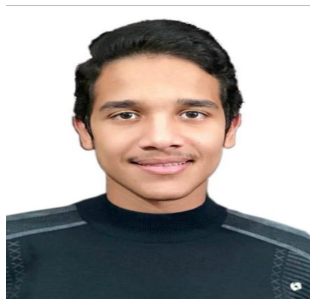
Supervised By: Marwan Ahmed



Our Team



Maya Ahmed Abdullah
Speech to Text Models



Zahy Youssef
Translation Models



Reem Al_Ghazali
Sentiment Analysis Models



Basma Elhoseny
Deployment




Youssef Hesham
Frontend



Usama Muhammad
Integration of Models



Core Services

- **Speech-to-Text Conversion:** Users can speak in either Arabic or English, and the app will accurately transcribe their speech into written text.
 - **Multilingual Translation:** The transcribed text can be automatically translated between Arabic and English, ensuring smooth communication between users of different language backgrounds.
 - **Sentiment Analysis:** After transcription and translation, the app performs sentiment analysis on the text to detect the emotional tone. The emotions classified include Neutral, Positive or Negative.
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Project Pipeline



Model Details

Model	nlptown/bert-base-multilingual-uncased-sentiment	CAMeL-Lab/bert-base-arabic-camelbert-ca
Architecture	BERT - multi-layer bidirectional Encoder	BERT - multi-layer bidirectional Encoder
Datasets	BooksCorpus (800 million words) and English Wikipedia (2.5 billion words)	Standard Arabic (MSA), Dialectal Arabic (DA), and Classical Arabic (CA). Fine-tuned on ASTD, ArSAS, and SemEval datasets
Parameters	110M parameters	110M parameters
Performance Metrics	GLUE benchmark	F1 score
Languages	Fine-tuned for sentiment analysis on product reviews in six languages including English	Arabic, specifically Dialectal Arabic
Task in project	Machine Translation - English	Sentiment Analysis - Arabic
Reference	Devlin, J., Chang, M.-W., Lee, K., & Toutanova, K. (2018). BERT: Pre-training of Deep Bidirectional Transformers for Language Understanding. CoRR, abs/1810.04805	Inoue, G., et al. (2021). The interplay of variant, size, and task type in Arabic pre-trained language models. arXiv


Model Details

Model	facebook/nllb-200	openai/whisper-medium
Architecture	Transformer encoder-decoder	Transformer encoder-decoder
Datasets	Primary, mined, back-translated, and monolingual data	680,000 hours of labeled audio data, referred to as the Whisper dataset
Parameters	600M parameters	769M parameters
Performance Metrics	BLEU, spBLEU, chrF++, Human Evaluation (XSTS)	Word Error Rate (WER)
Languages	202 languages	English and 98 other languages
Task in project	Machine Translation	Speech-to-text
Reference	Team, N., et al. (2022). No language left behind: Scaling Human-Centered Machine Translation. arXiv	Polyak, A., Behnke, M., Likhomanenko, T., Xu, Q., Zhang, Y., Gao, Z., Collobert, R., & Serdyuk, D. (2022). Robust speech recognition via large-scale weak supervision. arXiv

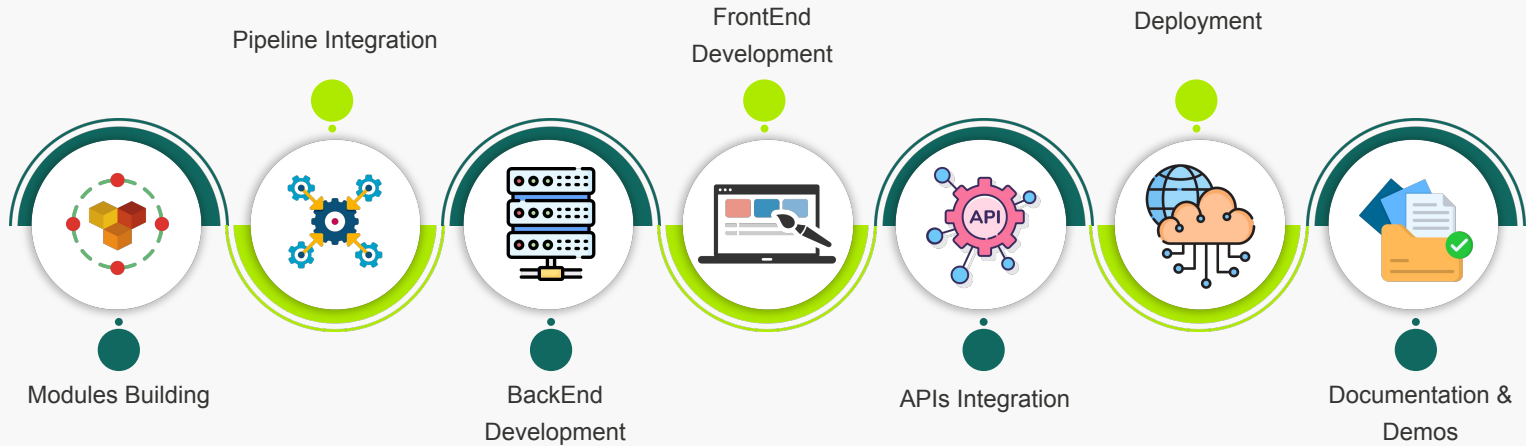
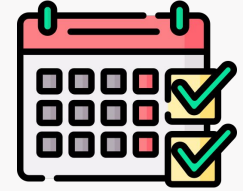


Business Domain

Target Audience:

- Individuals: People looking for easy ways to transcribe, translate, and analyze emotions in conversations, speeches, or personal notes.
 - Businesses: Companies dealing with customer support, client feedback, or market research where understanding customer sentiment is crucial.
 - Content Creators: Influencers, bloggers, or marketers who need fast and efficient multilingual transcription and translation, along with emotional insights from their audience.
 - Researchers and Analysts: Those conducting social media analysis or user behavior studies can use the app to understand emotional trends across different languages.
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Project Timeline



Tools



Work load



Maya Ahmed Abdullah	Speech to Text Models
Zahy Youssef	Translation Models
Reem Al_Ghazal	Sentiment Analysis Models
Basma Elhoseny	Deployment
Youssef Hesham	Frontend
Usama Muhamma	Integration of Models

Explore Our Project

GitHub Repository: <https://github.com/BasmaElhoseny01/DEPI-Project>

Demo : <http://48.217.82.28:8080/>



THANK YOU