# Dynamic Faces

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## Description:

In the "Dynamic Faces" project, excluding emotion recognition from voice inputs, real-time processing, and cloud services narrows down the technological landscape while still enabling impressive functionalities. Here's a breakdown of the technologies used in this refined context:

### Voice to Model:

1. Speech Recognition: Utilizes speech recognition technologies such as local libraries like Speech-Recognition in Python or Web Speech API for web-based applications to convert spoken words into text.

2. Natural Language Processing (NLP): Incorporates lightweight NLP algorithms and libraries like NLTK (Natural Language Toolkit) or spaCy for basic text analysis to understand the context of voice inputs.

3. Voice Analysis: Implements basic voice analysis techniques using open-source tools or custom algorithms to analyze voice inputs for fundamental characteristics like pitch, tone, and cadence.

4. Machine Learning and AI: Utilizes pre-trained machine learning models or basic AI algorithms for simple interactions and adaptive responses based on user inputs.

5. 3D Modeling and Animation: Relies on 3D modeling software such as Blender, Maya, or Unity's ProBuilder for creating avatar models and basic animations using keyframing, rigging, and blend shapes.

### Text to Model:

1. Text Analysis and Natural Language Understanding (NLU): Utilizes simplified text analysis techniques and rule-based parsing to process and understand text inputs for generating responses.

2. Dialog Management Systems: Implements lightweight dialog management systems or simple decision trees to handle conversations and generate appropriate responses based on textual inputs.

3. Avatar Customization: Provides basic avatar customization options through text-based commands or menus for defining the appearance.

4. Multi-language Support: Incorporates basic multi-language support using language translation tools or libraries for supporting interactions in different languages.

5. Accessibility Features: Includes fundamental accessibility features like text-to-speech (TTS) and basic screen readers for enhancing inclusivity and supporting users with visual or hearing impairments.

By leveraging these technologies, " Dynamic Faces " offers a foundational experience where users can interact with avatars through voice commands and text inputs, albeit with simplified functionalities and without relying on cloud services for processing or storage.