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 PROJECT PROPOSAL  
 SPEECH RECOGNITION SYSTEM  
  
  
  
  
  
  
  
 DEPARTMENT OF COMPUTER SCIENCE**

**OBJECTIVE:**

* Main Objective of this project is to help people with disabilities such as stammering (People who have difficulty speaking fluently)
* Speech Recognition for stammers will allow them to improve their speech through recognizing specific words where they stammer the most. The model will be trained accordingly.

**BACKGROUND:**  
Speech recognition technology has witnessed significant advancements, yet individuals with speech disabilities, such as stammering, face unique challenges. Existing systems often struggle to adapt to the different speech patterns of those with stammers. This project aims to address this gap by developing an inclusive Speech Recognition System specifically designed to enhance communication for individuals facing difficulties in speaking fluently. **SCOPE:**The project's scope encompasses the following key aspects:

**Target Audience:** Individuals with stammers or speech fluency challenges.

**Speech Improvement:** Focused on recognizing specific words causing stammering, thereby assisting users in improving overall speech fluency and also by suggesting synonyms of those words.

**Applicability:** The developed system aims to be applicable in various contexts, including educational, professional, and social settings.

**DATA COLLECTION:  
  
Diverse Dataset:** Compilation of a diverse dataset, incorporating speakers with various stuttering patterns, ages, genders, and backgrounds.

**Stammered Speech Samples:** Inclusion of specific stammered speech samples to train the model to recognize and adapt to stammering characteristics.

**Ethical Considerations:** Obtaining informed consent from participants to ensure ethical data collection practices.

**FRAMEWORK:**The project will leverage the following frameworks and tools:

**1) SpeechRecognition:**

* Purpose: Convert spoken language into written text.
* Reason: The SpeechRecognition library provides a simple interface to Google Web Speech API, ensuring accurate transcription.

2) **pydub:**

* Purpose: Handle audio file manipulation, such as conversion between formats.
* Reason: pydub offers a straightforward way to convert MP3 files to WAV format.

3) **Noisereduce:**

* Purpose: Reduce background noise in audio files.
* Reason: Cleaner audio improves the accuracy of speech recognition.

**TRAINING PROCESS:**The training process will involve the following steps:

1. **Data Preprocessing:**
   * Cleaning and organizing the dataset to ensure consistency and reliability.
2. **Model Architecture:**
   * Designing a neural network architecture capable of recognizing specific words associated with stammering.
3. **Stammered Speech Sensitivity:**
   * Incorporating stammered speech samples in the training data to enhance the model's sensitivity to stammering patterns.
4. **Continuous Learning:**
   * Designing the system for continuous learning, adapting to evolving speech patterns and user interactions for ongoing improvement.