



PhonoClear - “Your Path to Clear Speech”

Ministry/Organization Name/Student Innovation:
Ministry of Social Justice and Empowerment

PS Code: SIH1334

Problem Statement Title: Software for intervention of speech sound disorder in Hindi and English

Team Name: ByteSync

Team Leader Name: Chandana L

Institute Code (AISHE): C-1273

Institute Name: Vidyavardhaka College of Engineering

Theme Name: Smart Education



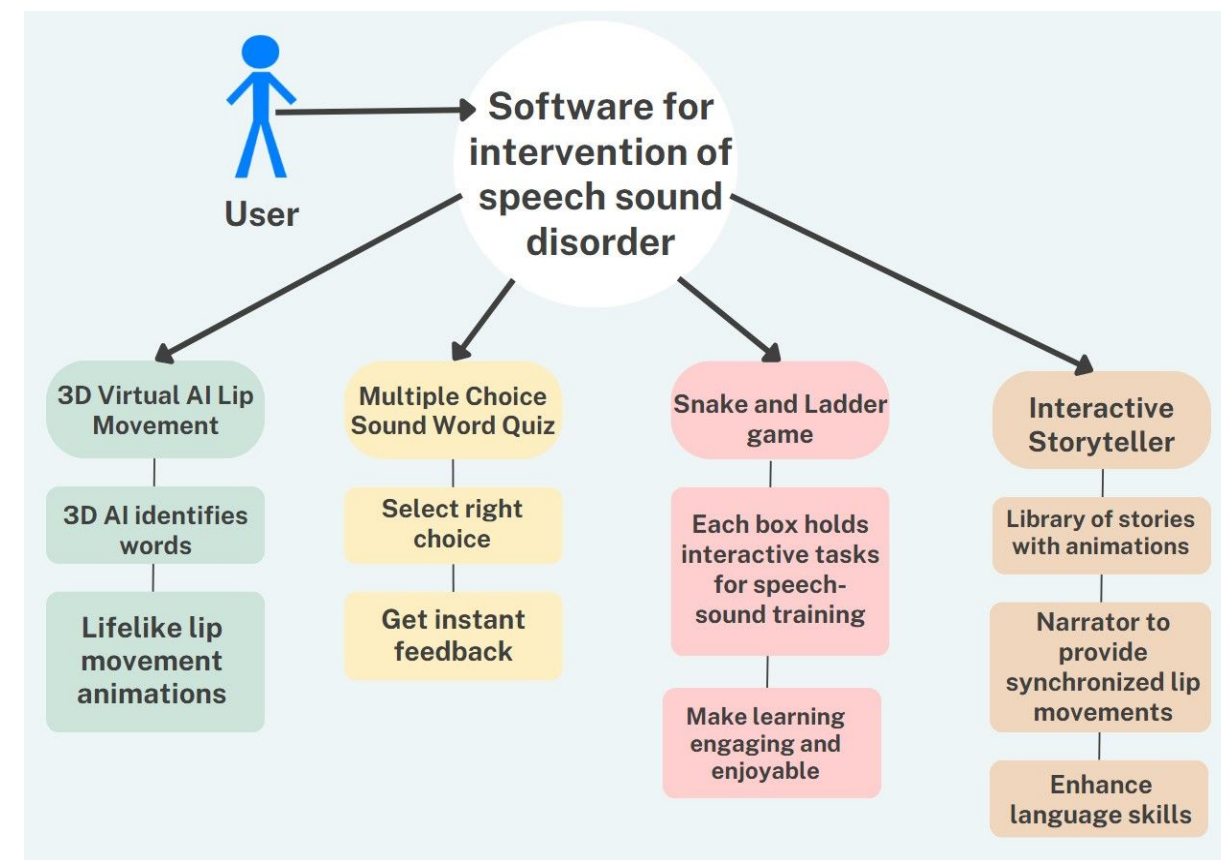
Idea/Approach Details

Prototype :

□ We are looking forward to build a **web application** that helps people with speech-sound difficulties learn and have fun using **games, quizzes, stories, and 3D mouth animations**. Our goal is to enhance their communication and quality of life.

Key Features:

- 1. 3D Virtual AI Lip Movement Generator:** When users tap a sound or word, they will hear it pronounced correctly with a 3D model of **realistic lip, jaw and tongue movements**.
- 2. Multiple Choice Sound/Word Quiz:** Users can take quizzes on sounds/words, choose the correct answers, and receive **immediate feedback** for effective learning.
- 3. Snake and Ladder Training Game:** Enjoy a special multiplayer Snake and Ladder game with **interactive phonetics tasks** in each box for engaging and fun learning.
- 4. Interactive Storyteller:** Explore a library of stories with **animations** and a narrator to provide **synchronized lip movements**, enhancing language skills through immersive experiences.



Technology stack :



Idea/Approach Details

Use Cases :

1. Word and Picture Projection with Augmented Reality:

The **3D model** of lip movement is made using **Blender** and **Papagayo**. Users can also upload text images which will be recognised by our trained **AI-ML** model, and a 3D visual of lip movements will be provided using **virtual AI**.

2. Real-Speech Examples Enhanced by Artificial Intelligence:

The website uses **AI-generated** speech examples featuring a specific sound, helping user distinguish between correct and incorrect pronunciations.

3. Interactive Storytelling with Animations: To make learning fun, we include a story with animated characters using **augmented reality** and **virtual AI** which shows how to pronounce words correctly.

4. Gamification with Snake & Ladder: The game provides fun phonics tasks in each box, designed using **python**.

Dependencies / Show stopper:

1. Snake & Ladder game: Unique online multiplayer game that can spark the user's speech clarity.

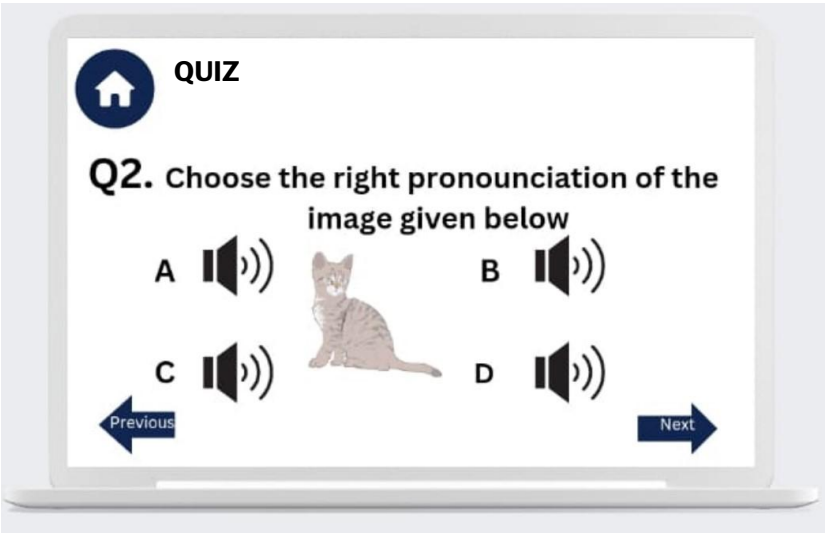
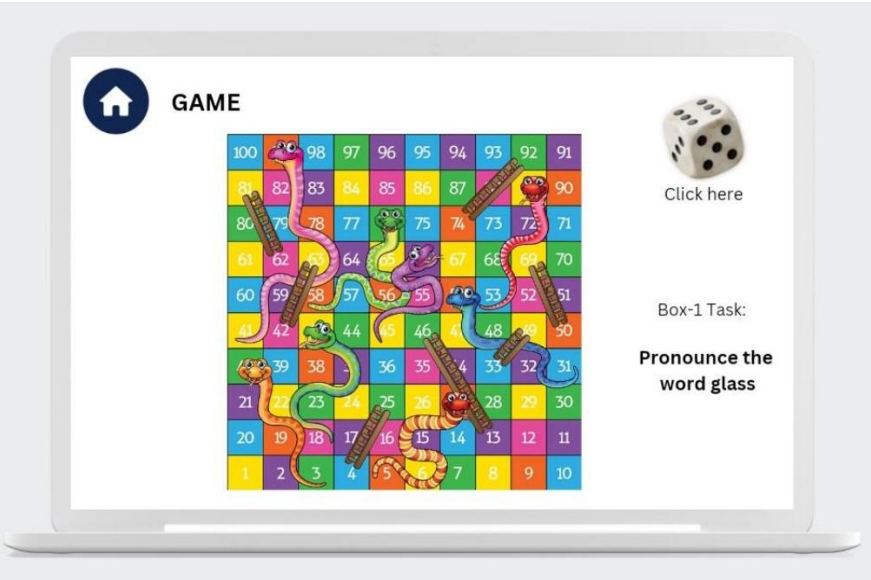
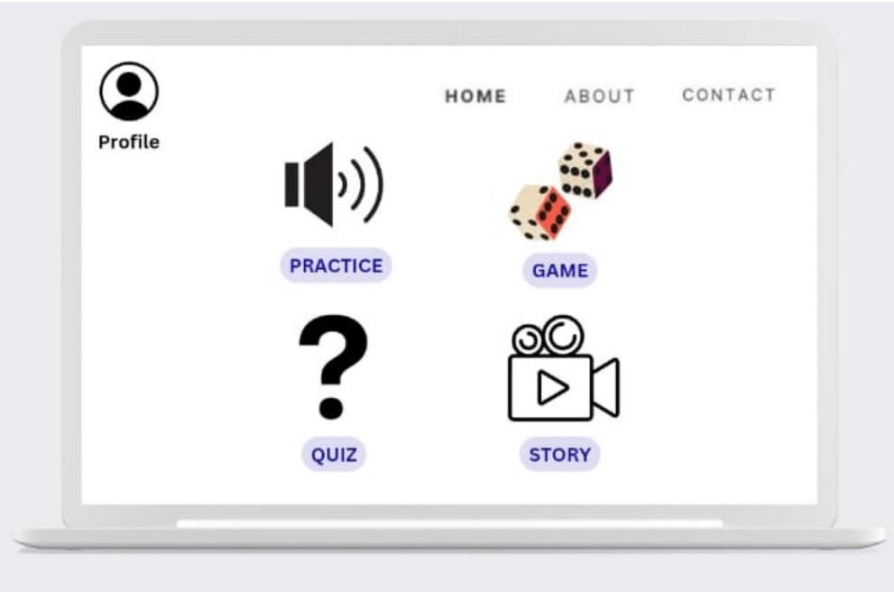
2. 3D model of lip movement: Utilizing modern -day technology to offer a comprehensive learning experience both in **English** and **Hindi** for **frequently misarticulated sounds**.

3. Consultation service: Users can contact **speech-language pathologists** for assistance or schedule an appointment.

4. Instant Feedback and Progress Tracking: The system tracks your pronunciation progress, showing where you began and **improvements** made with challenging sounds over time.

5. Speech analysis: Records your speech through the device's microphone, analyzes it and compares it to correct models in the system.

UI - UX Design :



Important Video Links



Visit to All India Institute of Speech and Hearing, Mysuru, Karnataka

Link:

https://drive.google.com/file/d/1fPsl_aYqhNJTvvR8Avjk0FWC8qtSa9EL/view?usp=sharing



Simple implementation of lip movement animation by our team, using Opentoonz and Papagayo

Link:

<https://drive.google.com/file/d/16N-OGGfOCt2APkou5hJthk92iWQoiREH/view?usp=sharing>

Team Member Details

	Name	Branch	Stream	Year
Team Leader Name	Chandana L	B.E	CSE	II
Team Member 1 Name	Pratiksha Barman	B.E	CSE	II
Team Member 2 Name	M Keerthana	B.E	CSE	II
Team Member 3 Name	Bhavana Maili	B.E	CSE	II
Team Member 4 Name	Keerthana M N	B.E	CSE	II
Team Member 5 Name	Chirashwi S	B.E	CSE	II

