# Basic Details of the Team and Problem Statement

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

PS Code: **SIH1403**

Problem Statement Title: **App Based Digital Audiometer**

Team Name: **gps4**

Team Leader Name: **Sachin Kumar Sahu**

Institute Code (AISHE): **U-0844**

Institute Name: **Indian Institute of Technology, Tirupati**

Theme Name: **MedTech / BioTech / HealthTech**

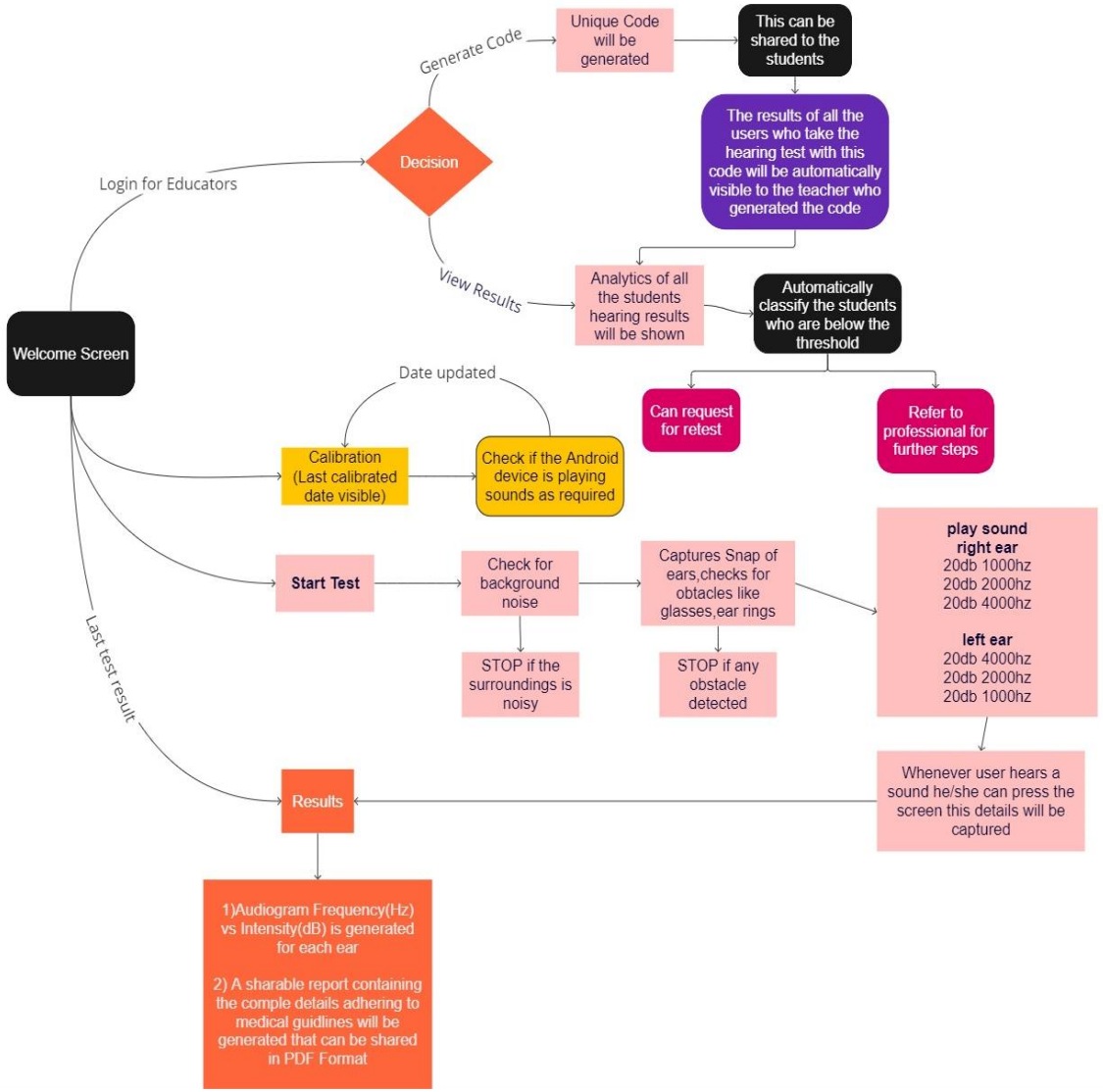
# Idea/Approach Details

## Idea:

- Before the start of hearing test, the surrounding noise level will be checked, snap of user ears will be taken and any obstacle like glasses, earrings will be detected. The test will start if it passes these checks.
- Monotone sound will be played at different intensity and frequencies through right ear and then through left ear.
- User has to press the screen when ever he hears the sound
- The audiogram with speech banana will be plotted between Intensity(dB) and frequency(Hz).A report adhering to medical guideline will be generated and it can be exported in PDF format.

**Educators Login:** (useful for especially for school teachers)

- An educator can generate a unique code that can be shared with students. The educator gets all the hearing test results that are performed with this code.
- Our app analyzes the results using ML, summarizes it using visual aids, identifies the students whose result is below the threshold. The educator can request retest or refer to a professional for further steps




## Technology stack:

- Flutter (cross platform applications),Dart, Machine Learning
- Material UI
- Firebase

# Idea/Approach Details

## Use Cases:

- **Remote Testing:** General Public without access to specialized equipment, the app can serve as a convenient and cost-effective solution for hearing assessments.
- **Parental Involvement:** Parents can use the app to perform hearing tests on their children at home, fostering early detection and communication with schools.
- **Research and Data Collection:** Schools can use the app to collect data on the prevalence of hearing loss among students, contributing to research and public health efforts.
- **Educators:** The app can be used as a tool for hearing test, helping educators recognize signs of hearing loss in students and refer them for further evaluation.
- The app can be integrated into telehealth platforms, allowing remote audiologists to assess students' hearing

- **FIGMA Design** can be accessed through the following link: Figma Prototype (Basic Layout)
- **Flow Chart:** can be accessed through the following link: Detailed Flow Chart

## Show stopper:

- **Inherent Inaccuracy:** Despite implementing extensive measures to enhance accuracy, there may still be instances where the results obtained are not entirely reliable or precise, posing a substantial challenge.
- **Device Hardware Issues:** The functioning of the user's phone hardware can be a potential show stopper. Malfunctions or deficiencies in the mobile device, such as its speaker components, can significantly impair the app's performance and reliability.

# Team Member Details

**Team Leader Name:** **Sachin Kumar Sahu**

Branch: Btech Stream: Computer Science and Engineering Year: IV

**Team Member 1 Name:** **Preethi Varsha Marivina**

Branch: Btech Stream: Computer Science and Engineering Year: IV

**Team Member 2 Name:** **Palivela Ganesh Priyatham**

Branch: Btech Stream: Computer Science and Engineering Year: IV

**Team Member 3 Name:** **Siddhartha G**

Branch: Btech Stream: Computer Science and Engineering Year: IV

**Team Member 4 Name:** **Sirish Sekhar**

Branch: Btech Stream: Computer Science and Engineering Year: IV

**Team Member 5 Name:** **Swami Ramachandra Kedari**

Branch: Btech Stream: Computer Science and Engineering Year: IV

**Team Mentor 1 Name:** **Dr. Sridhar Chimalakonda**

Category : Academic Expertise : Software Engineering Domain Experience (in years):