Dhwani Sarathi

SIH 1403

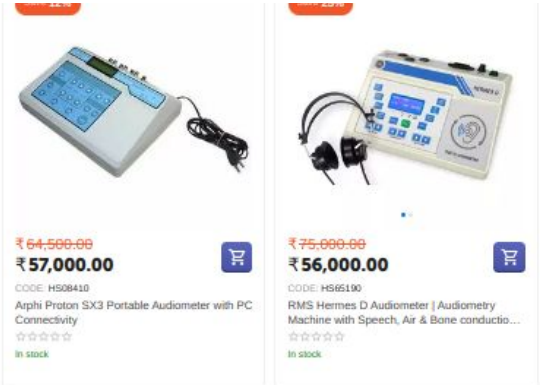
App Based Digital Audiometer

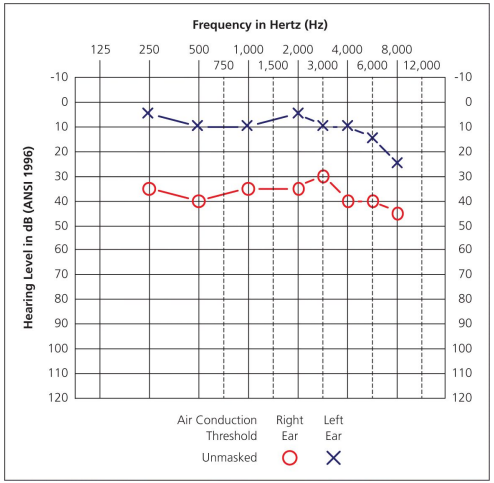
Team gps4

Current Situation

Pure-Tone Audiometer

- Portability and Size
- Cost (> 50 000 INR)
- Hardware Availability Issues
- Lack of expert professionals
- History of Patient Data (Bulk data)





Need for App-based Solution

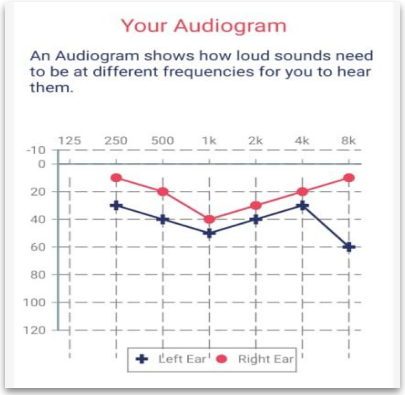
- **Early Detection**
  - Regular Monitoring
  - Timely interventions and treatments
- **Convenience**
  - Availability
  - Remote testing
- **Data Tracking and Analysis**
  - Large-Scale Studies
  - Tailored Testing

Use Cases

Schools and Children

Industry checkups

Doctors



Use Cases

Schools and Children

- **Regular School Checkups**
  - Large number of tests
  - Periodic Records
- **Early Detection in Children**
  - Timely medical attention
  - Hearing aids, assistive listening devices

Use Cases

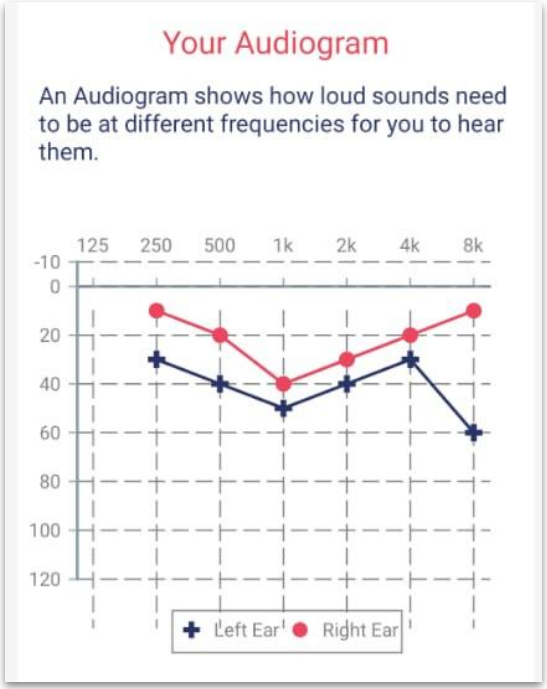
Regular Industry checkups

- **Occupational hazards**
  - Sawmills, textile industry, printing press, etc.
  - Repeated exposure to loud noise
  - Govt. mandates use of safety equipments

Use Cases

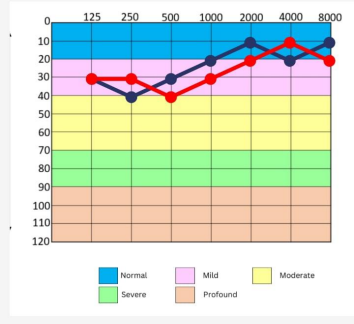
Medical Diagnosis

- **Personalized Medical Attention**
  - Patient management
  - History of user tests
  - Easy to share options
- **Medical Research Database**
  - Bulk results (export to Excel)
  - Digital format

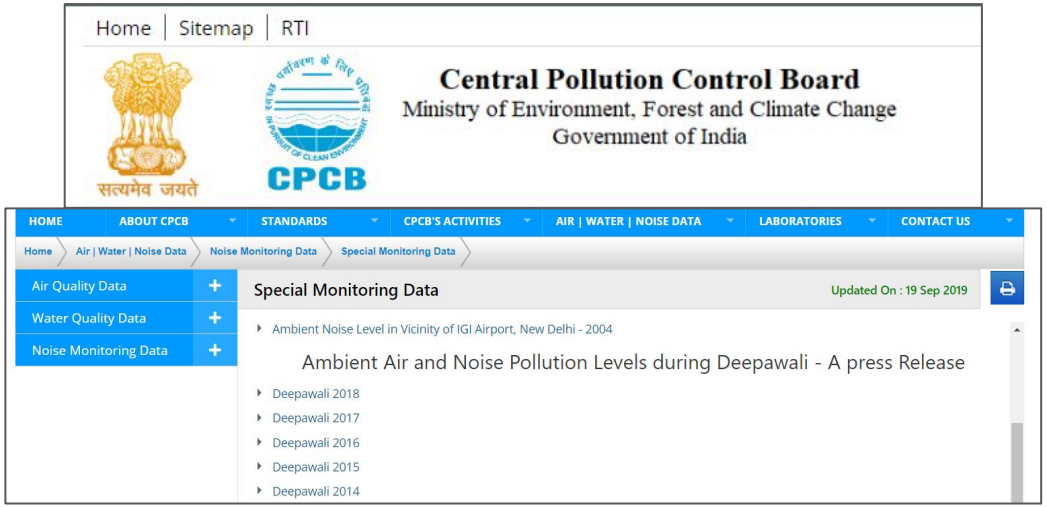


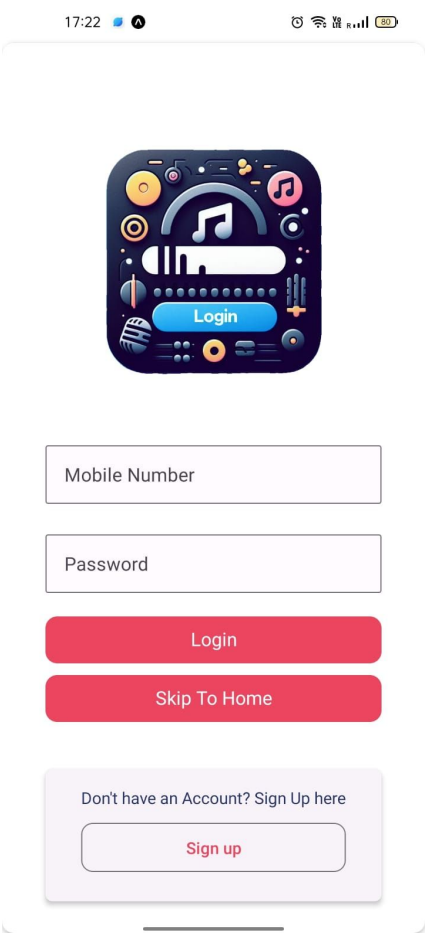
User View

- **Improved Tutorials** with clear images
- Quick 3-step test
- Detailed graph with **labels**
- Share your results
- **Doctors near me**
- Dashboard - **Test Results History**
- **Noise pollution reporting**
- Legal Rules
- Test results based on ISO 389-7:2019 - Calibration of Audiometric Equipment

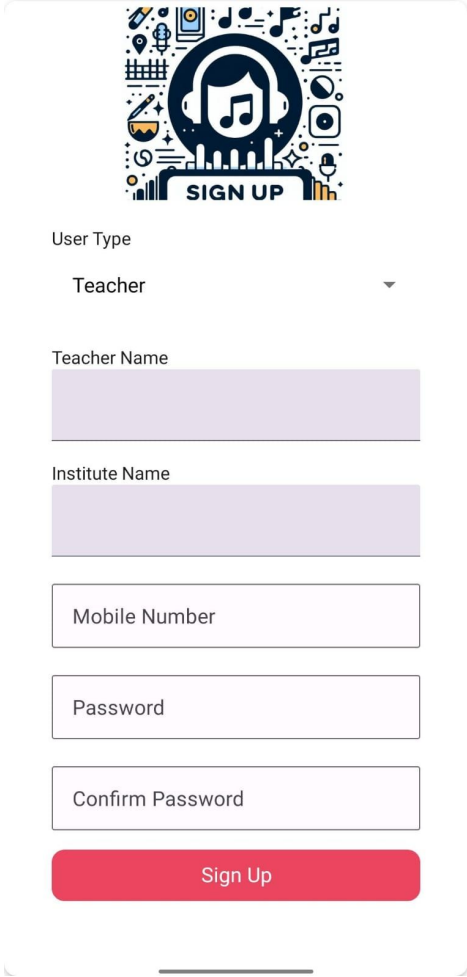


Views
User View
Teacher View
Doctors / Government

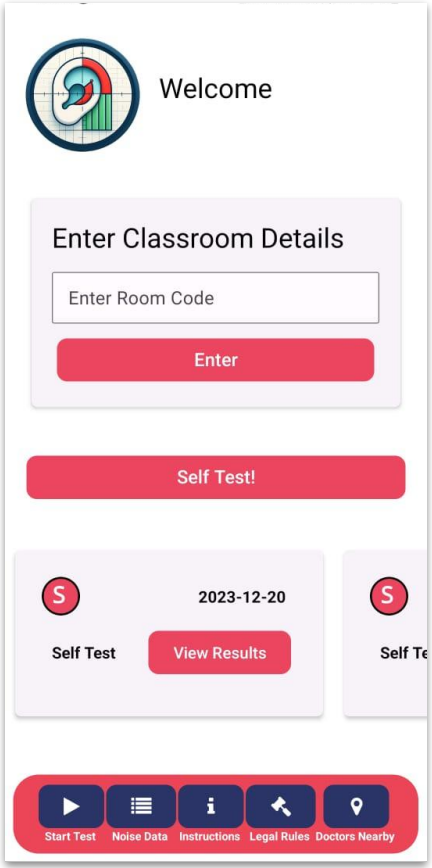


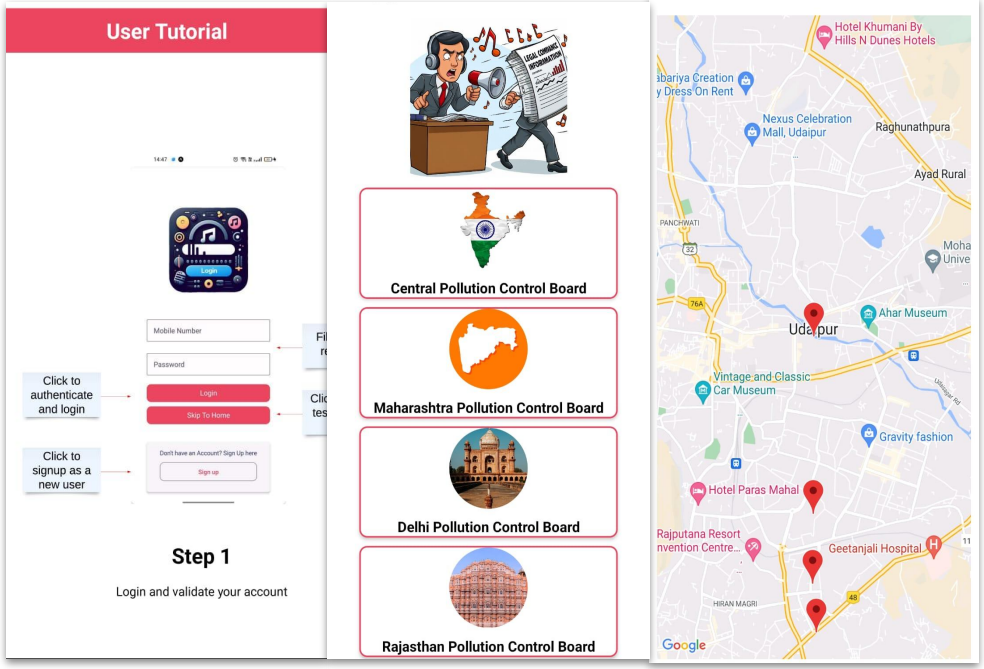


3-step process to check your hearing

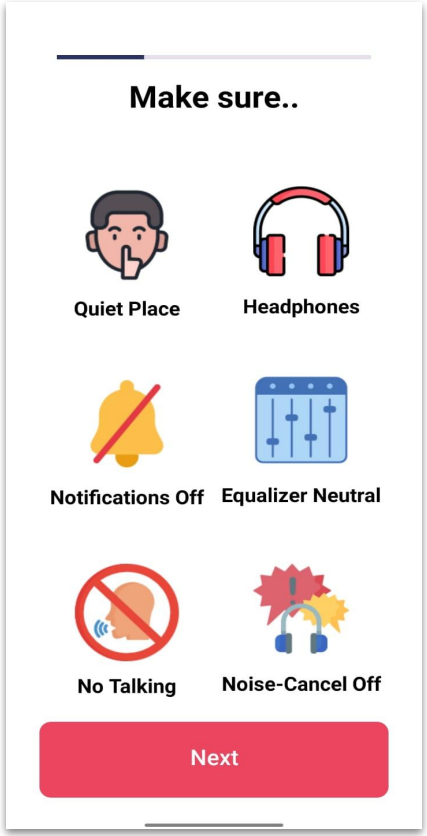


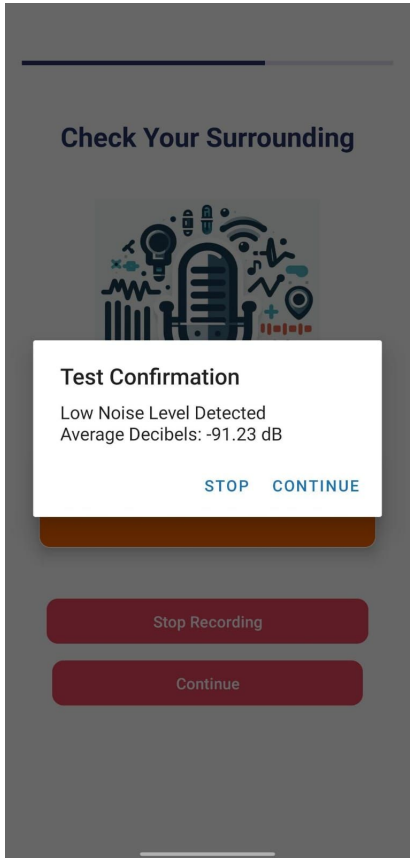
USER SCREENS

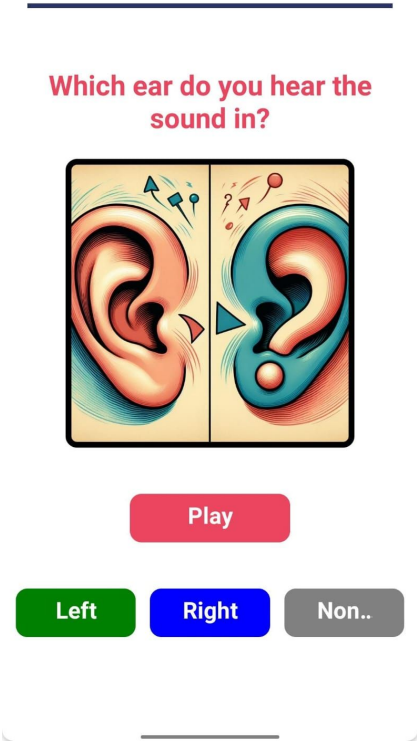




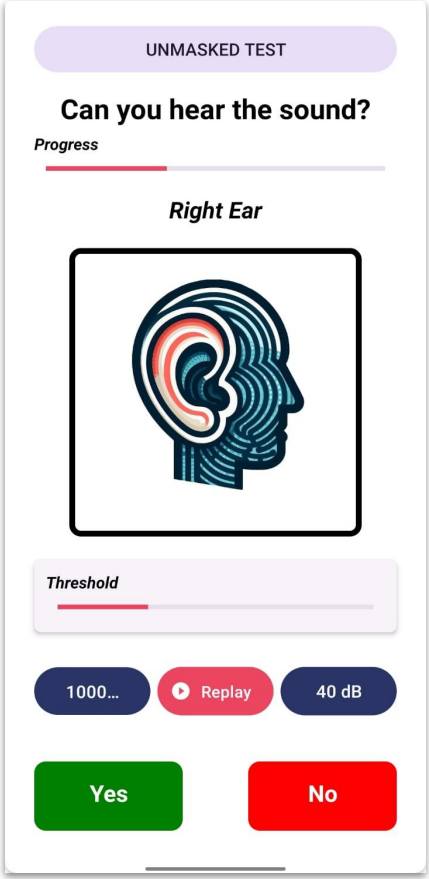
PRELIMINARY CHECKS

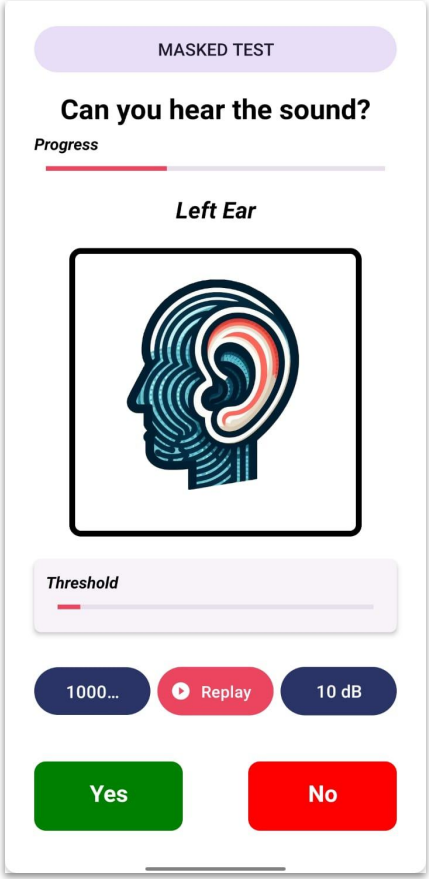




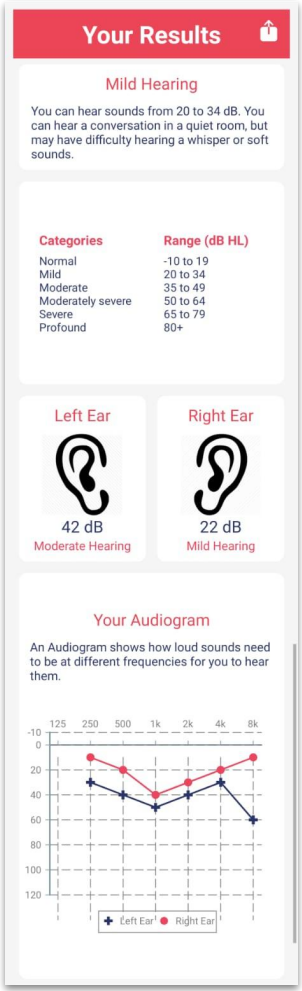


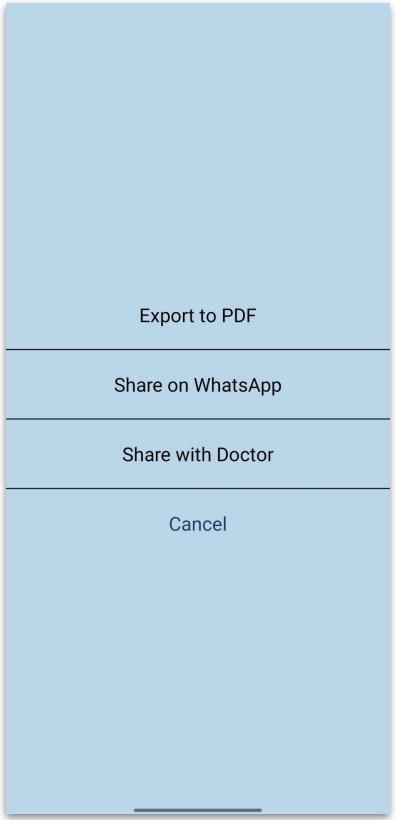
TEST IN PROGRESS (MASKED and UNMASKED)

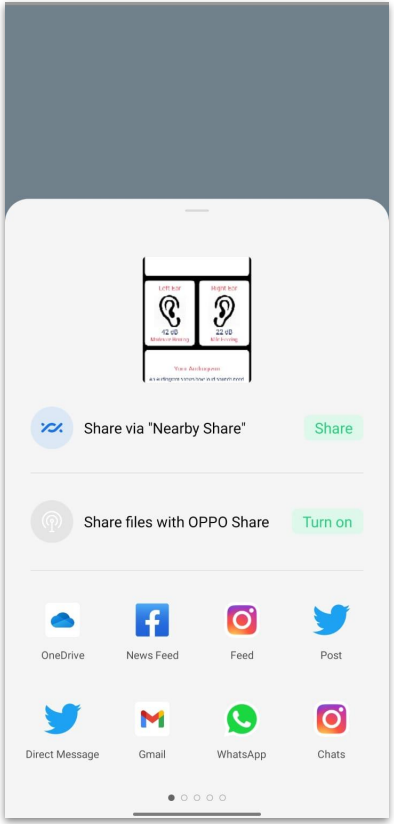




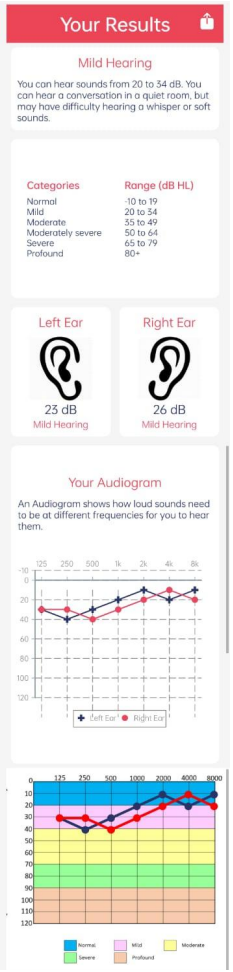
RESULTS

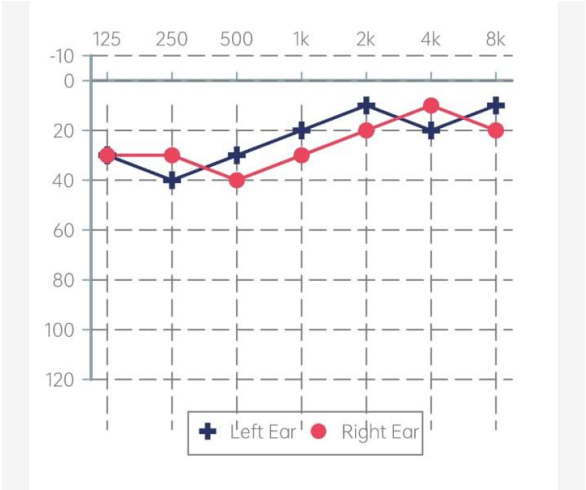

Your Results
Mild Hearing
You can hear sounds from 20 to 34 dB. You can hear a conversation in a quiet room, but may have difficulty hearing a whisper or soft sounds.
Categories
Range (dB HL)
Normal -10 to 19
Mild 20 to 34
Moderate 35 to 49
Moderately severe 50 to 64
Severe 65 to 79
Profound 80+
Left Ear
42 dB
Moderate Hearing
Right Ear
22 dB
Mild Hearing
Your Audiogram
An Audiogram shows how loud sounds need to be at different frequencies for you to hear them.
125 250 500 1k 2k 4k 8k
-10 0 20 40 60 80 100 120
Left Ear
Right Ear

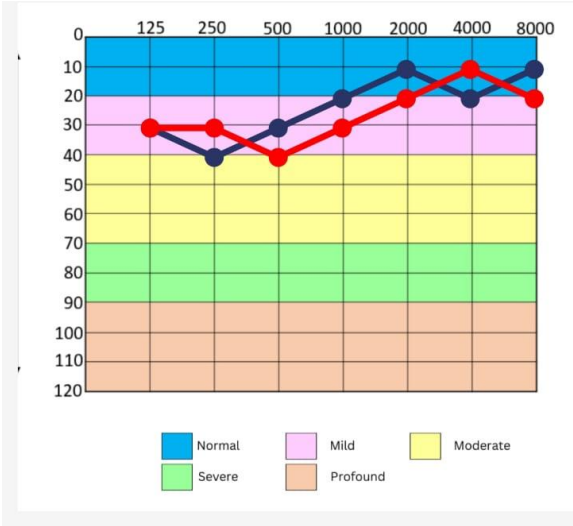

Export to PDF
Share on WhatsApp
Share with Doctor
Cancel


Share via "Nearby Share"
Share
Share files with OPPO Share
Turn on
OneDrive
News Feed
Feed
Post
Direct Message
Gmail
WhatsApp
Chats

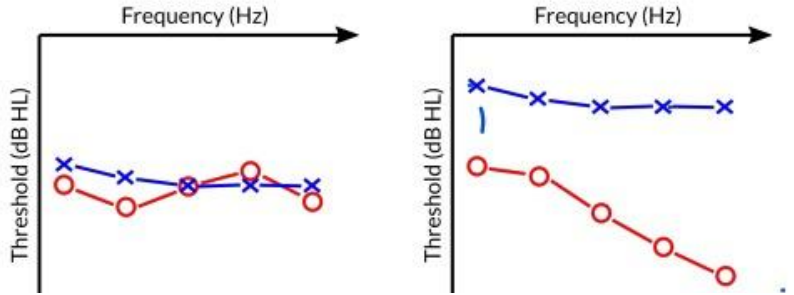
IMPROVED RESULTS







Test Interpretation

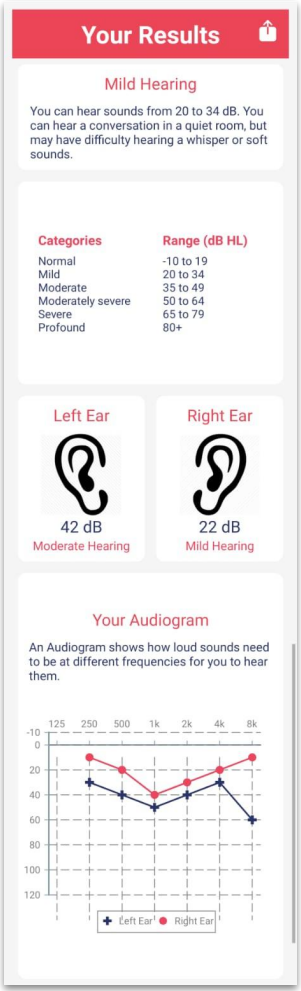


MASKED	UNMASKED	Interpretation
Good	Good	Normal Hearing
Not Good	Good	Sensorineural loss in one ear
Good	Not Good	Possible ringing in ears
Not Good	Not Good	Improper Hearing

Summary

5 A’s

Audiometry Analytics Available Anywhere Anytime!!!



Teacher View

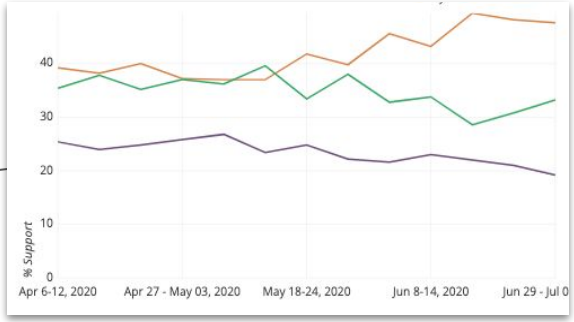
- Create Audio Rooms and Assignments
- Digital Records
- Test history for each student
- Analytics of individual results
- Consolidated class results

Views
User View
Teacher View
Doctors / Government

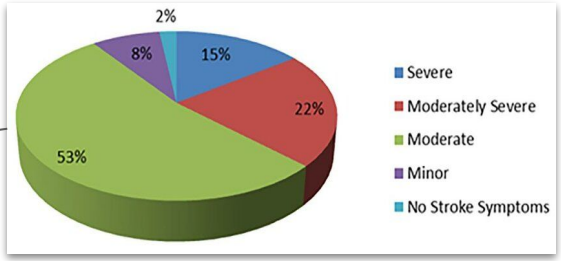
Hierarchical Analytics

Profile Analytics

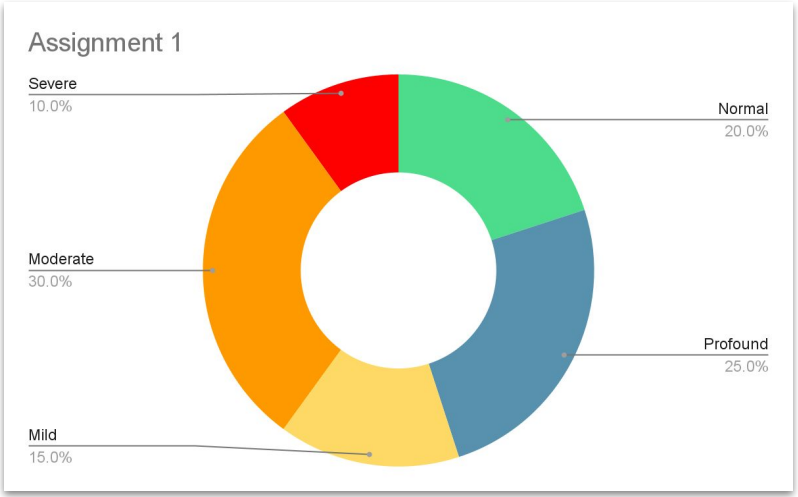
Classroom Analytics



Assignment Analytics



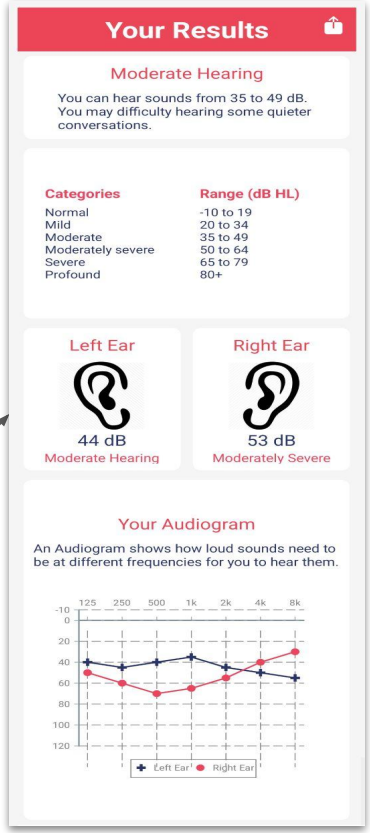
Assignment Analytics



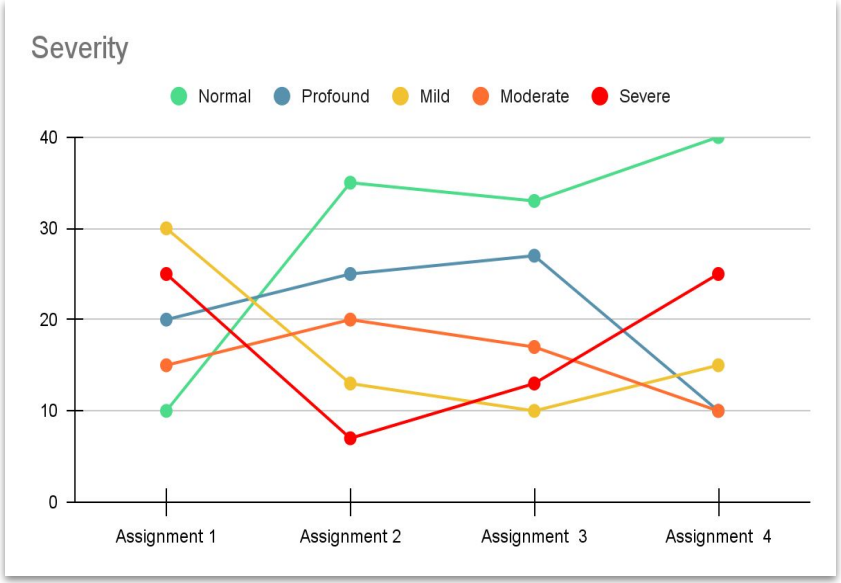
SWAMI

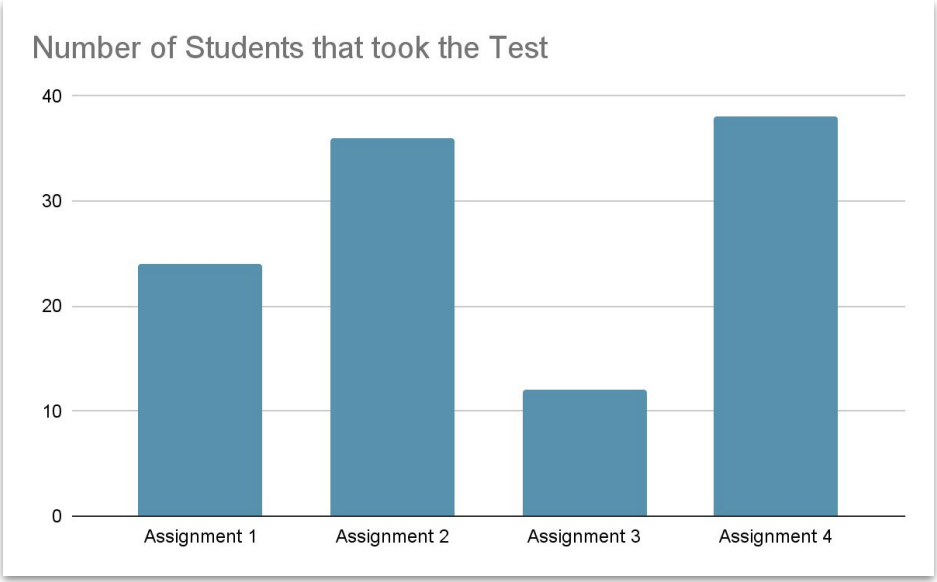
Age : 10 Gender: Male

More Details

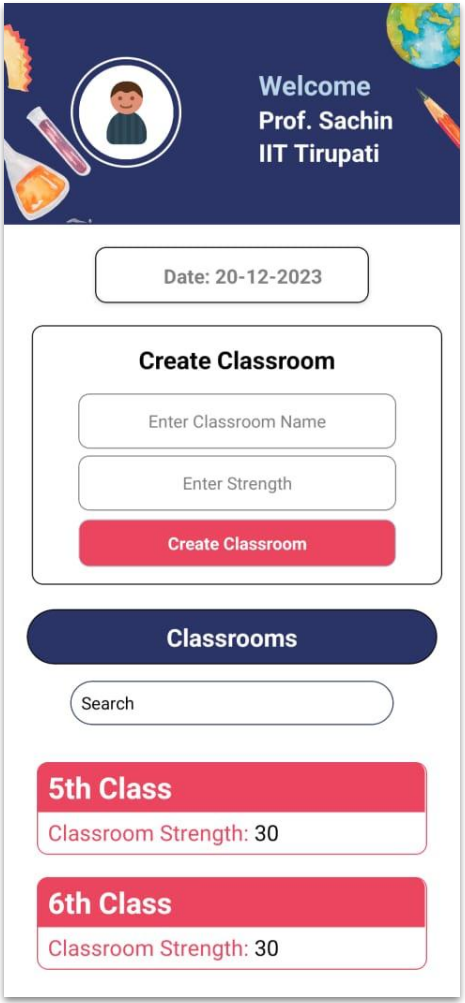


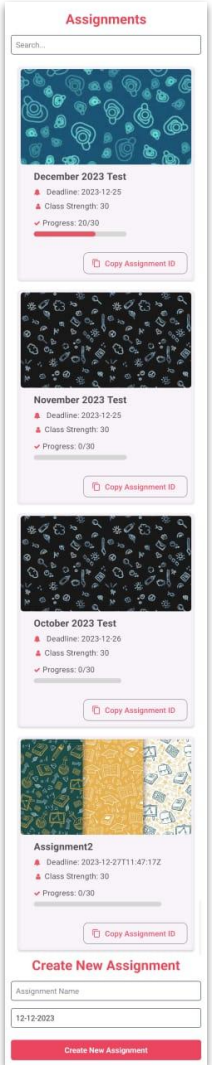
Classroom Analytics

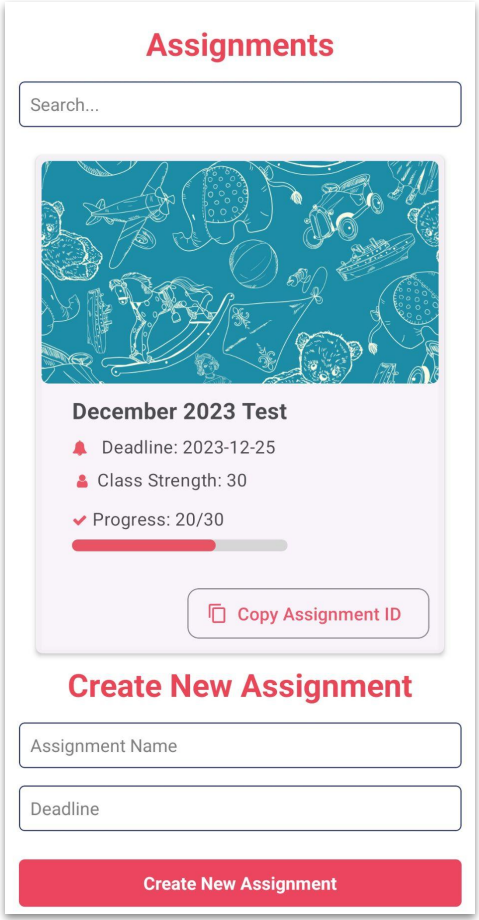




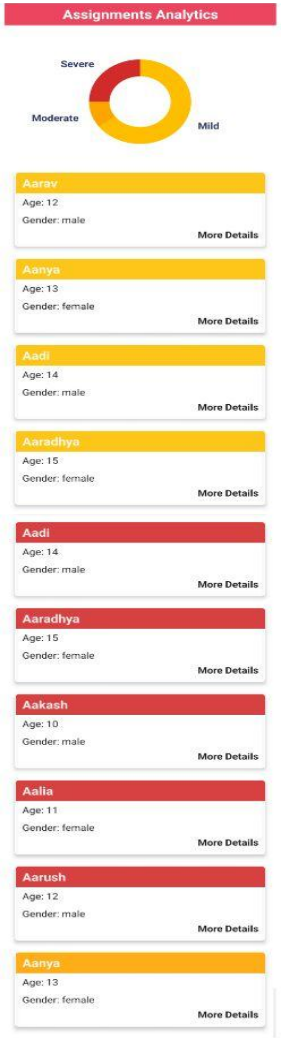
TEACHER SCREEN

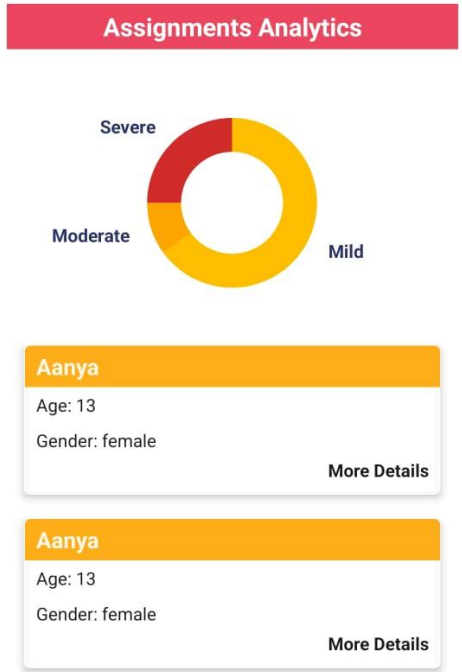






Analytics

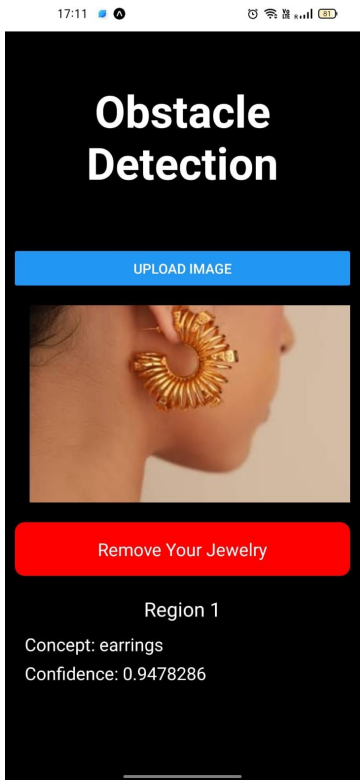




Results filtered based on severity

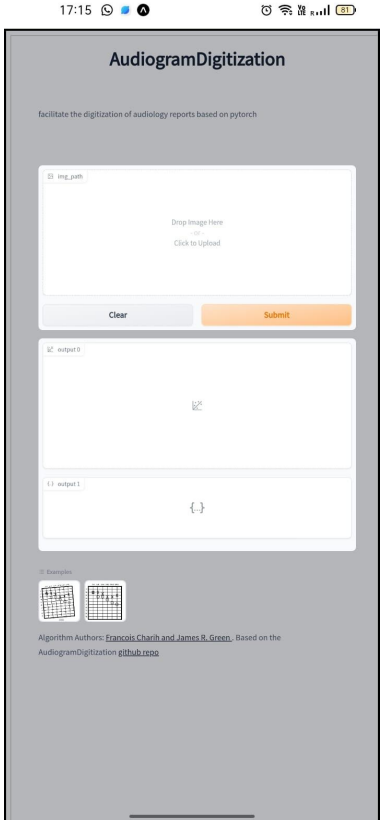
Improvements

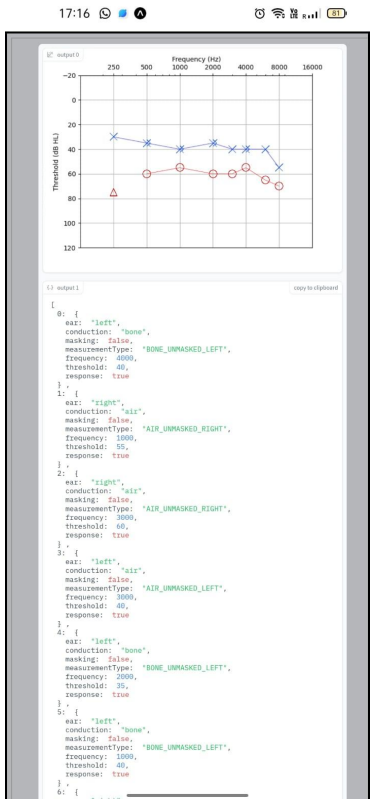
- Obstacle Detection
  - Alerts for obstacles that impede accurate assessment is crucial

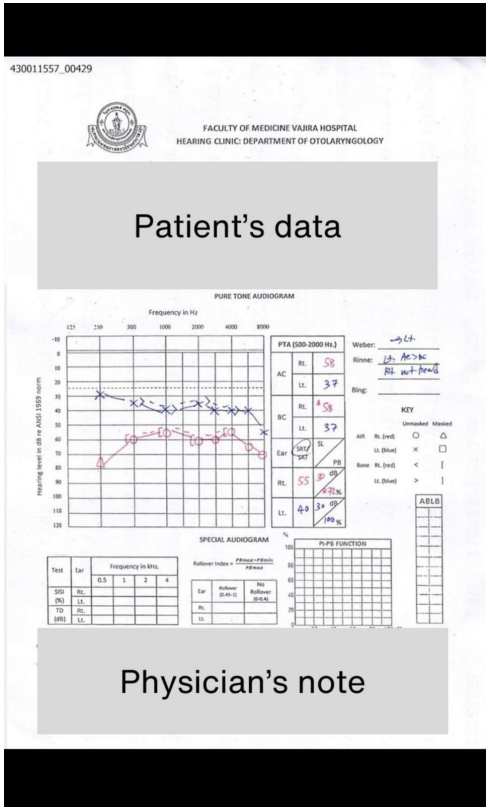


Improvements

Digitalization of report documents

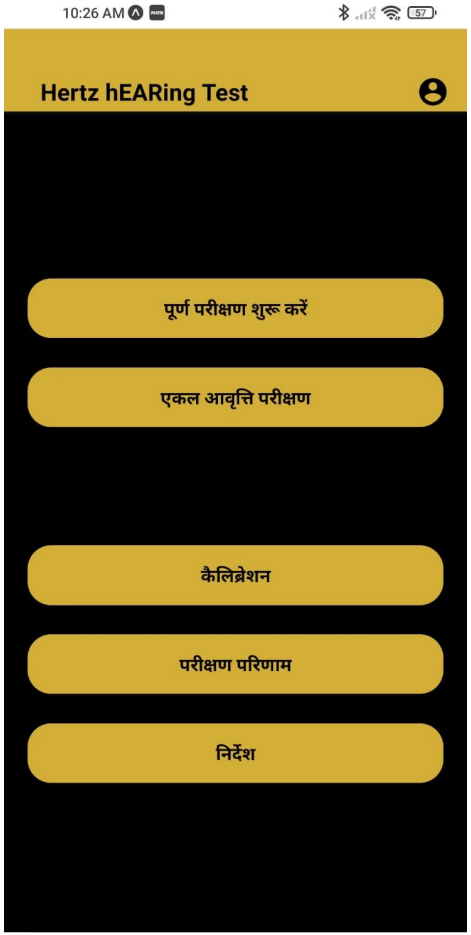






Experimental Features

- Multi-lingual support



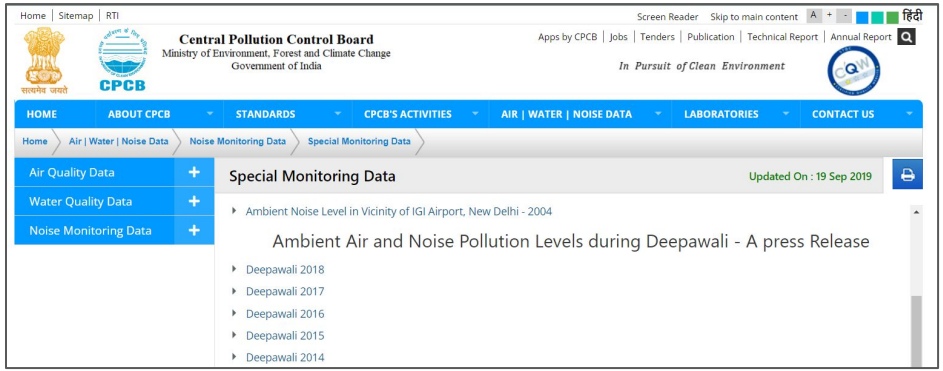
Impact

1. Industries
    a. Audio rooms → Industry Locations
    b. Assignments → For Quarterly Checkup
2. Institutions
    a. Audio rooms → Physical Classrooms
    b. Assignments → For Regular Checkup
3. Doctors
    a. Audio rooms → Managing Set of Patients
    b. Assignments → directly getting results from patients

Broader View

- **Doctors**
  - Checkup history of patients
  - Diagnose accurately
- **Industries & Government**
  - Test for occupational hazards
  - Analyze this data to know potential challenges
  - Monitor noise pollution data
  - Personalized hearing-aid

Views
User View
Teacher View
Doctors / Government



Business Model

Target Audience

- Concerned Users with ear issues
- ENT Doctors
- Schools
- **Industries with exposure to Noise**

Business Model

How to make it profitable

- ***Freemium Model***
  - Premium Tests under a paywall
  - Unlock detailed results and history
  - Daily users, Doctors
  - Connect with partnered ENT experts
  - Paid advertisements
- ***Enterprise Level Product and Service***
  - Selling software as a service
  - Industry as partner

Business Model

Go-to-Market Strategy

- **Product Focus**
  - User friendly features
  - Emphasizing accuracy by following ISO standards
  - Ease of use, and innovative features
  - Implement strong branding
  - User first policy

THANK YOU

Appendix

Hearing Level Classification

01	Normal	upto 19 dB
02	Mild	20 to 40 dB
03	Moderate	35 to 60 dB
04	Moderately severe	50 to 80 dB
05	Severe	65 dB or greater
06	Profound	80 dB+

Ref: Olusanya BO, Davis AC, Hoffman HJ. Hearing loss grades and the *International classification of functioning, disability and health*. Bull World Health Organ. 2019 Oct 1;97(10):725-728. doi: 10.2471/BLT.19.230367. Epub 2019 Sep 3. PMID: 31656340; PMCID: PMC6796665.