

DATASET 2025

# **MULTILINGUAL SPEECH-LANGUAGE ASSESSMENT PLATFORM**

TEAM SYNTAX ERROR

# THE PROBLEM STATEMENT

- THE NEED: PROFESSIONALS IN SLP, OCCUPATIONAL THERAPY, AND SPECIAL EDUCATION REQUIRE INTERACTIVE DIGITAL TOOLS LIKE AAC BOARDS AND VISUAL SCHEDULES TO TREAT COMMUNICATION DISORDERS.
- THE CORE ISSUE: INDIA LACKS A CENTRALIZED, ADVANCED PLATFORM FOR CREATING AND DEPLOYING THESE TOOLS IN CULTURALLY RELEVANT FORMATS.
- THE LOCAL CONTEXT: WHILE GLOBAL PLATFORMS EXIST, THEY ARE WESTERN-CENTRIC, LACK SUPPORT FOR INDIAN LANGUAGES, AND DO NOT ACCOUNT FOR LOCAL BANDWIDTH CONSTRAINTS.
- GOAL: TO BUILD A MULTILINGUAL ASSESSMENT PLATFORM FEATURING AN AUTOMATED ASR (AUTOMATIC SPEECH RECOGNITION) SCORING ENGINE AND A CUSTOM ASSESSMENT AUTHORIZING STUDIO.

# EXISTING GAPS

- OPERATIONAL INEFFICIENCY: MANUAL SCORING AND TRANSCRIPTION ARE EXTREMELY TIME-INTENSIVE.
- INCONSISTENCY: ASSESSMENT QUALITY VARIES SIGNIFICANTLY ACROSS DIFFERENT LANGUAGES.
- DIAGNOSTIC LIMITATIONS: THERE IS CURRENTLY LIMITED ABILITY TO PERFORM PHONEME-LEVEL ERROR ANALYSIS (E.G., IDENTIFYING SPECIFIC SOUND DISTORTIONS).
- DELAYED CARE: DOCUMENTATION AND REPORTING ARE SLOW, AND SPEECH SERVICES RARELY REACH RURAL OR REMOTE REGIONS.

# OUR PROPOSED SOLUTION

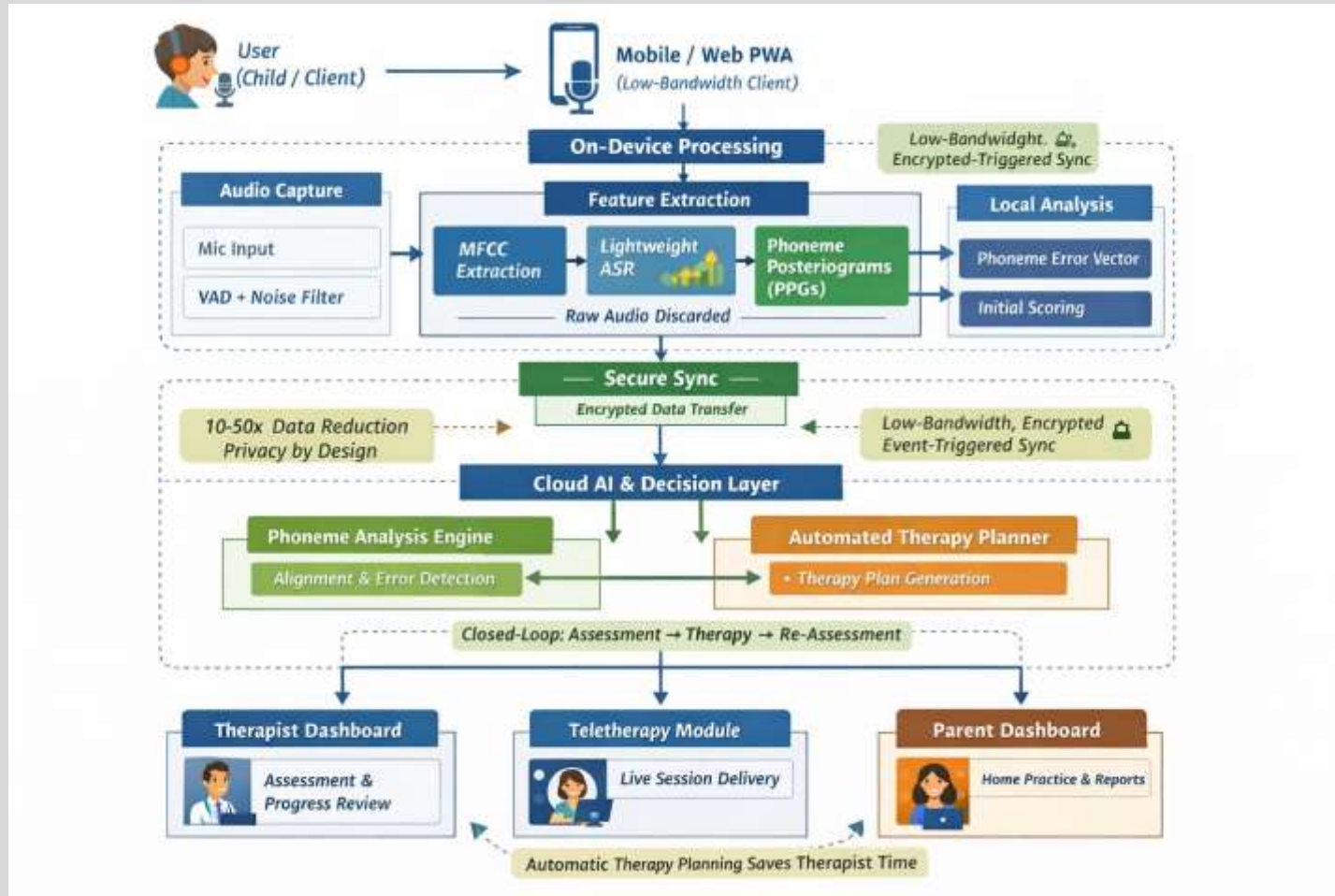
## **An Integrated AI-Driven Therapy Ecosystem**

- **Multilingual ASR Engine:** A specialized speech engine fine-tuned for Indian accents and regional languages like Tamil, Hindi, Telugu, and Bengali.
- **Automated Clinical Insights:** AI-generated scoring and phoneme-level error detection (substitutions, omissions, or distortions).
- **Authoring Studio:** A tool for therapists to create custom assessments using culturally relevant words and images.
- **Accessibility:** A Progressive Web App (PWA) designed for low-bandwidth environments to ensure reach in rural areas.

# OUR INNOVATIVE FEATURES

- GIVE INSIGHTS TO THERAPISTS BASED ON PAST SESSIONS TO HELP THEM DESIGN PERSONALIZED QUESTIONNAIRES
- MFCC INTELLIGENCE – SPEECH PROCESSING WITH PHONEME POSTERiors
- PARENT CIRCLE – COMMUNITY HUB FOR CAREGIVERS

# WORKFLOW OF THE ARCHITECTURE



# TEAM MEMBERS



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