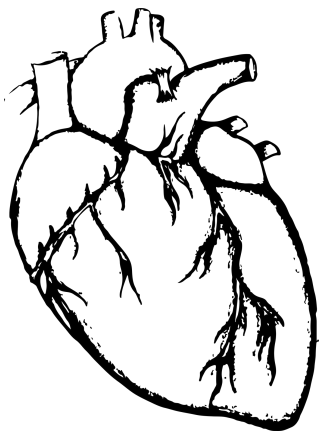

PROJECT ROADMAP

VALVULAR HEART DISEASE (VHD)

1 RESEARCH

- Conduct literature review
- Define clear system objectives, scope, and expected outputs (valve detection, murmur classification, embedded UI).
- Study datasets
- Select final components.

2 DATASET PREPARATION

- Download and organize the training dataset.
- Label heart sounds.
- Segment and preprocess audio.
- Extract features (MFCCs or spectrograms) for model training.

3 AI MODEL DEVELOPMENT

- Train Model 1: Valve selection.
- Train Model 2: Normal vs abnormal.
- Train Model 3: If abnormal, classify type.
- Validate models for accuracy.

4 HARDWARE INTEGRATION

- Set up Coral Dev Board with required software (Mendel OS, Python, TF Lite runtime).
- Connect and test INMP441 mic for I2S audio.
- Connect OLED display and create display layout for results (valve, condition).
- Implement button interface for user input (e.g., start recording, valve selection).

5 TESTING & EVALUATION

- Run controlled tests with known dataset samples
- Collect test samples from volunteers, evaluate generalization.
- Final System Assembly Test complete system for usability, durability, and battery operation.
- Create user guide to explain how to operate the system in the field
- Conduct final prototype demonstration