Project Design Phase-I
Proposed Solution

Team ID	PNT2022TMID03593
Project Name	Project - Classification of Arrhythmia by Using Deep Learning with 2-D ECG Spectral Image Representation

Proposed Solution:

S.No.	Parameter	Description
1.	Problem Statement (Problem to be solved)	The Patient affect by cardiovascular diseases he can't identify his disease and what type his have. After he taking ECG report but he cannot identify his problem was severely affecting some heart problems and types.
2.	Idea / Solution description	The ECG signals can capture the heart's Rhythmic irregularities, commonly known as arrhythmias. A careful study of ECG signals is crucial for precise diagnoses of patients' acute and chronic heart conditions. In this study, we propose a two-dimensional(2D) convolutional neural network (CNN) model for the classification of ECG signals into six classes. Namely, normal beat, premature ventricular contractions beat, right bundle branch block beat, left bundle branch block beat, premature atrial contraction beat and ventricular fibrillation beat.
3.	Novelty / Uniqueness	Spectrograms (2-D images) are employed, which are generated from the 1-D ECG signal using STFT. In addition, data augmentation was used for the 2-D image representation of ECG signals. A state-of-the-art performance was achieved in ECG arrhythmia classification by using the proposed CNN-based method with 2-D spectrograms as input.
4.	Social Impact / Customer Satisfaction	An accurate taxonomy of ECG signals is extremely helpful in the prevention and diagnosis of cardiovascular diseases
5.	Business Model (Revenue Model)	Patient may need further monitoring of his heart using Classification of Arrhythmia by Using Deep Learning with 2-D ECG Spectral Image Representation

6.	Scalability of the Solution	100% prediction is impossible. But in this system can provide 87% or above accuracy.