Project Design Phase-I
Proposed Solution Template

Date	24 September 2022
Team ID	PNT2022TMI36525
Project Name	Project – Classification of arrhythmia using deep learning with 2-D ECE spectral image Representation
Maximum Marks	2 Marks

Proposed Solution Template:

Project team shall fill the following information in proposed solution template.

S.No.	Parameter	Description
1.	Problem Statement (Problem to be solved)	To create a Deep Learning Model that classifies various types of Arrhythmia with 2- dimensional ECG Spectral Image representation.
2.	Idea / Solution description	In the preprocessing phase - the electromyographic noise present in the ECG signals are removed using wavelength based thresholding technique. Next the ECG signal is transformed into a 2-D representation using a 2D CNN Model. In order to perform this transformation, an efficient CNN model is implemented after analyzing various architectures. The core idea is to make this CNN model classify different kinds of arrhythmia such as LBB, PVC, RBB etc.
3.	Novelty / Uniqueness	We will attempt to create an API that is capable of handling inputs and producing the corresponding Arrhythmia class for the given ECG signal. This API will help to simulate an interactive user environment for gaining a seamless experience.
4.	Social Impact / Customer Satisfaction	The major stakeholders of this project are the individuals aged more than 50. By getting to know about irregularities in the ECG signals of heartbeats, customers can greatly benefit from early diagnosis of heart ailments.

5.	Business Model (Revenue Model)	There isn't a single application out there in the market that performs detection of Arrhythmia. By integrating our novel product with a smart wearable, we can launch a new series of health tracking smart devices.
6.	Scalability of the Solution	By pitching our idea to Angel Investors and Venture Capitalists, we can extend this idea into a reality by launching a fully-fledged startup that markets this product.