Project Design Phase-I
Proposed Solution Template

Date	19 September 2022
Team ID	PNT2022TMID23017
Project Name	Project - Classification of Arrhythmia by Using Deep Learning with 2-D ECG Spectral Image Representation
Maximum Marks	2 Marks

S.No.	Parameter	Description
1.	Problem Statement (Problem to be solved)	Arrhythmia is a representative type of CVD that refers to any irregular change from the normal heart rhythms. There are several types of arrhythmia, although a single arrhythmia heartbeat may not have a serious impact on life, continuous arrhythmia beats can result in fatal circumstances. This project should enable a medical practitioner to rapidly identify the exact type of arrhythmia of the patient (customer).
2.	Idea / Solution description	In this project, we build an effective electrocardiogram (ECG) arrhythmia classification method using a convolutional neural network (CNN), in which we classify ECG into seven categories, one being normal and the other six being different types of arrhythmia using deep two-dimensional CNN with grayscale ECG images.
3.	Novelty / Uniqueness	One of the major decisions had to be made was choosing the suitable programming language satisfying our goal for extracting knowledge from our data. After some searching the suitable decision has been made by selecting Python as the project programming language. Due to the fact that, a lot of tools and frameworks are available for Python to create powerful Artificial Neural Networks. Also IBM Watson helps to predict future outcomes,automate complex processes,and optimize user's time. And also the result accuracy will be increased from 70% which is the accuracy of the test results that the previous developed codes produced.
4.	Social Impact / Customer Satisfaction	This project can help decrease the time to diagnose the correct type of arrhythmia and enable doctors to spend more time and effort into treating the condition, which can dramatically increase satisfaction of the customer and free the doctor of more work.

5.	Business Model (Revenue Model)	Can collaborate with diagnosis centers and hospitals. Can collaborate with the government for health awareness camps.
6.	Scalability of the Solution	This project will help us to detect arrhythmia more precisely than the existing methodologies. Also it can produce a result which specifies the exact type of arrhythmia.