PROPOSED SOLUTION

1. Problem Statement (Problem to be solved)

To create a Deep Learning Model that classifies various types of Arryhythmia 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 wavelet 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 analysing 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 corresponsing 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 Captialists, we can extend this idea into a reality by launching a fully-fledged startup that markets this product.