**Project Design Phase-I**

**Proposed Solution Template**

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| Date | 09 October 2022 |
| Team ID | PNT2022TMID34104 |
| Project Name | Classification of Arrhythmia by using Deep Learning with 2-D ECG spectral Image Representation. |
| Maximum Marks | 2 Marks |

**Proposed Solution Template:**

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| **S.No.** | **Parameter** | **Description** |
|  | Problem Statement (Problem to be solved) | An Arrhythmia is a problem with the rate or rhythm of your heartbeat.  It means that your heart beats too quickly,too slowly,or with an irregular pattern.  An Arrhythmia is an irregular heartbeat. If you have an arrhythmia,your heart may beat faster or slower than others without arrhythmia.  There are several different conditions might cause your heart to beat abnormally,and treatment depends on the cause. |
|  | Idea / Solution description | Talk to your healthcare providers if you feel like your heart is racing, if you feel dizzy or lightheaded, or you have chest pain.  Treatment for heart arrhythmias may include medications, therapies such as vagal maneuvers, cardioversion, catheter procedures or heart surgery. |
|  | Novelty / Uniqueness | Implementing an automated system in the clinical setting can potentially.  An automated system using a combination of convolutional neural network (CNN) and long short-term memory(LSTM).  The novelty of this work is that we used ECG segments of variable length from the MIT-BIT arrhythmia physio bank database. |
|  | Social Impact / Customer Satisfaction | Some patients feel that arrhythmia cause a negative impact on family life.  They feel alone and arrhythmia leds to feeling of isolation.  Increased emotional distress and feelings of uncertainty related to arrhythmia have been reported by others. |
|  | Business Model (Revenue Model) | The competitive spectrum of the global Cardiac Arrhythmia Monitoring Devices market is provided.  The study delivers crucial insights pertaining to the production of the manufactured items, the revenue generated as well as the company profile among others.  The report also highlight the market share that each firm holds and their respective gross margins. |
|  | Scalability of the Solution | (1) High scalability: The MRR construction strategy can be extended to incorporate existing deep models into its framework as its channel models.  (2) Stable performance: Theoretically, in the worst case, this method will still be able to achieve as good a performance as good as channel model-based solutions |