Project Title: **Classification of Arrhythmia by Using Deep Learning with 2-D ECG Spectral Image Representation**

Project Design Phase-I – **Solution Fit Template**   **Team ID:** PNT2022TMID00644

Define CS, fit into CC

1. CUSTOMER SEGMENT(S)
Who is your customer?

> Patients are customers here

6. CUSTOMER CONSTRAINTS
What constraints prevent your customers from taking action or limit their choices of solutions? i.e. spending power, budget, no cash, network connection, available devices.

- Need of experts.
- Budget problem.

5. AVAILABLE SOLUTIONS
or need to get the job done? What have they tried in the past? What pros &

> The algorithms used for arrythmia classification
> Incorporate preprocessing,feature extraction,and classifiction.
> Classification becomes complicated when class overlap and class imbalance problems occur together

Explore AS, differentiate

Focus on J&P, tap into BE, understand RC

2. JOBS-TO-BE-DONE / PROBLEMS   **J&P**
Which jobs-to-be-done (or problems) do you address for your customers? There could be more than one; explore different sides.

> The problem here is classification of arrhythmia takes more time and requires experts. It can't be done anytime by anyone.

> The point that triggers the customers to use this is that it doesn't require anyone's assistance

9. PROBLEM ROOT CAUSE   **RC**
What is the real reason that this problem exists? What is the back story behind the need to do this job?

> Arrythmia means heart is not beating properly. This can cause anything form cardiac arrest to death.

7. BEHAVIOUR   **BE**
What does your customer do to address the problem and get the job done?

i.e. directly related: find the right solar panel installer, calculate usage and

> The problem of arrythmia is directly connected to patient. When he/she feels irregular heartbeat or any breathing issues he can address the issue.

Focus on J&P, tap into BE, understand C

CH

online channels from #7

> Users need to upload of image of the ECG.

> Patients need to under scan to get images of the heartbeat.

P, t a

i.e. lost, insecure > confident, in control - use it in your communication strategy & design.

> **Before:** The patients need to take an appointment with the doctor and wait for long time.
> **After:** It is not required for the patients to wait for long time. If they have their ECG report, the work is almost done.

> The ECG signals can capture the heart's rhythmic irregularities, commonly known as arrhythmias. we propose a two-dimensional (2-D) convolutional neural network (CNN) model for the classification of ECG signals into eight classes; namely, normal beat, , paced beat, right bundle branch block beat, left bundle branch block beat, atrial premature contraction beat, ventricular flutter wave beat, and ventricular escape beat.

Identif