Project Design Phase-I
Problem – Solution Fit Template

Date	08 NOVEMBER 2022
Team ID	PNT2022TMID46647
Project Name	Project – Classification of Arrhythmia using Deep learning with 2D ECG spectral image representation
Maximum Marks	2 Marks

Problem – Solution Fit :

The Problem-Solution Fit simply means that you have found a problem with your customer and that the solution you have realized for it actually solves the customer's problem. It helps entrepreneurs, marketers and corporate innovators identify behavioral patterns and recognize what would work and why

Purpose:

- ☐ Solve complex problems in a way that fits the state of your customers.
- ☐ Succeed faster and increase your solution adoption by tapping into existing mediums and channels of behavior.
- ☐ Sharpen your communication and marketing strategy with the right triggers and messaging.
- ☐ Increase touch-points with your company by finding the right problem-behavior fit and building trust by solving frequent annoyances, or urgent or costly problems.
- ☐ **Understand the existing situation in order to improve it for your target group.**

Project Title: **Classification of Arrhythmia By Using Deep Learning With 2-D ECG Spectral Image Representation**
Team ID:PNT2022TMID00594

Project Design Phase-I - Solution Fit Template

Define CS, fit into CC

1. CUSTOMER SEGMENT(S)
CS

Patients are our customer

6. CUSTOMER CONSTRAINTS
CC

-Available Equipments/Devices
- have to know basic image uploading skills.
- have a cell phone / laptop.
- have a Gmail / Google Account.
- have proper images and medical records.

5. AVAILABLE SOLUTIONS
AS

or need to get the job done? What have they tried in the past? What pros & cons do these solutions have? i.e. pen and paper is an alternative to digital notetaking

- wearing a small portable ECG recording device for 24 hours or longer is usual of detection which is considered to be time consuming by users. -Timely treatment is not possible with using only ECG. - Traditional Clinical lab testing but does not use any automated systems related to CVDs.

-Timely treatment is not possible with using only ECG.

Explore AS, differentiat

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

2. JOBS-TO-BE-DONE / PROBLEMS
J&P

-People / users / patients want to share their reports with clinical experts and their prescribed doctors for further course of action that is need to be taken.

- People want do quick conformation anywhere anytime with just having only the images they have from tests.

-The problem here is classification of arrhythmia takes more time and requires experts.

9. PROBLEM ROOT CAUSE
RC

-No proper maintenance of patient records in hospitals and labs and leading to privacy issues of patient documents being made publically available under health organizations.

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

7. BEHAVIOUR
BE

i.e. directly related: find the right solar panel installer, calculate usage and benefits; indirectly associated: customers spend free time on volunteering work (i.e. Greenpeace)

- People use different methods of classification techniques under the guidance of doctors and clinical experts for arrhythmia but there no automated systems bein

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

Identify strong TR & EM

3. TRIGGERS
TR

- People want to make their life easier, feel safe and connected anytime, anywhere.

- Have a proper web application to make things automated and easy to detect their health with accuracy.

10. YOUR SOLUTION
SL

-to propose a 2-D CNN-based classification model for automatic classification of cardiac arrhythmias using ECG signals.

-to make a web application as reliable as possible for the user/patient to fed his image into the model that is trained and the cited class is displayed on the webpage.

-to help experts diagnose CVDs by referring to the automated classification of ECG signals.

8. CHANNELS of BEHAVIOUR
CH

ONLINE:

- Social media results regarding automated web application create awareness for other users on the efficiency and reliability about the automated classification of cardiac arrhythmias and also Expert advertise online test proofs.

OFFLINE:

-Patients need to undergo scan to get images of the heartbeat.

Identify strong TR & EM

4. EMOTIONS: BEFORE / AFTER
EM

BEFORE: People / patients / users did feel reliable and efficient with traditional ECG methods so automated systems and the web application goal is to change it!

AFTER: It is not required for the patients to wait for long time.If they have their ECG report,the work is almost done

4. EMOTIONS: BEFORE / AFTER EM How do customers feel when they face a problem or a job and afterwards? 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.		