Project Design Phase-I
Proposed Solution Template

Date	19 September 2022
Team ID	PNT2022TMID35483
Project Name	Early Detection of Chronic Kidney Disease
Maximum Marks	2 Marks

Proposed Solution Template:

S.No.	Parameter	Description
1.	Problem Statement (Problem to be solved)	Detection of Kidney disease at an early stage
2.	Idea / Solution description	Using the brainstorming and idea prioritization template in mural these ideas are considered as feasible and important. They are: 1. Check anaemia, urea, edema, packed cell volume, diabetes and urine pus cells. If it exceeds the threshold, then specify CKD 2. Regular Blood test for creatinine and Glomerular Filtration Rate(GFR) All the above specified ideas are to be followed for early detection and avoidance of chronic kidney disease using conventional methods. Let us analyze each one of them.

		Considering point no. 1, it is feasible to check anaemia, urea, edema in leg, packed cell volume, diabetes and urine pus cells of many persons like almost 1000 persons and create an excel sheet and then analyze if they are having chronic kidney disease or not. This excel sheet can later be used to train AI model and further test the model. Later if only these parameters are fed to the model then the model can predict if chronic kidney disease is present or not. Considering point no. 2, Blood test for creatinine and Glomerular Filteration Rate(GFR) can be studied for many persons around 1000 persons and then identify if they have chronic kidney disease. An AI model can be built based on the data and further can train and test the model to predict chronic kidney disease. A ML model can be built to analyze these data and further used to predict the kidney disease from it.
3.	Novelty / Uniqueness	The idea of checking various parameters of the blood and identifying chronic kidney disease at an early stage is the best idea for a conventional technique as suggested by various doctors. Generally, many people would use Glomerular Filtration Rate as a means to find chronic kidney disease. To have a low cost technique, we are using machine learning as a tool to detect the disease which is a novel idea and very different from conventional detection techniques.

4.	Social Impact / Customer Satisfaction	Early detection of CKD which reduce fatalities related to this disease and it also help in facilitation of appropriate dosing of medications and allow timely preparation for kidney replacement, which may improve outcome.
5.	Business Model (Revenue Model)	Refer Next Page
6.	Scalability of the Solution	ML Models can be modified and scaled easily. So, the same ML model if fed with different sets of data can be used to detect other fatal diseases also.

BUSINESS MODEL

Business Model

Key Partners	Key Activities	Value Propositions	Customer Relationships	Customer Segments
Our Key partners have a latest testing laboratory to collect samples of blood and urine to analyse various parameters with a testing capacity of almost 1000 persons a day. Our ML Models can test a large number of samples and give accurate output within a short period of time.	Our key activities are to find out whether persons have chronic kidney disease or not.	We are trying to solve chronic kidney disease at an early stage thereby helping them to recover at a faster rate. We are targeting persons liable to get chronic kidney disease using statistical analysis of the collected data.	We need to have a cordial relationship with the persons coming forward for giving blood test. They expect accurate result from our ML model. The cost of building the model may outfit the early detection of chronic kidney disease.	We are creating value for humans. Our customers are common people who have work culture or wrong lifestyle habits which may lead to chronic kidney disease. Customer base will be a mass market as everyone will give importance to health. We will also be providing a diet regulatory counselling to them.
	Key Resources		**Channels**	
	Our key resources are testing laboratories, ML Models and their data. To create an excel sheet from the data.		Need to reach our patients through doctors. Using ML model to suggest best practices which can help doctors and patients in avoiding and recovering chronic kidney disease.	

Cost Structure

Most important cost is mainly for data collection through laboratories. This model is cost driven as it has maximum automation with only a few questions needed to be asked to patients. As compared to older methods, ML Detection technique is cost effective.

Revenue Streams

Patient's visiting doctors are willing to pay for knowing if they have chronic kidney disease or not. Overall revenue is good and it depends on the accuracy of ML model which will help the doctors to do a correct prediction.