Project Design Phase-I
Proposed Solution Template

Date	24 September 2022
Team ID	PNT2022TMID02292
Project Name	Project – Early Detection of Chronic Kidney Disease Using Machine Learning
Maximum Marks	2 Marks

Proposed Solution Template:

Project team shall fill the following information in proposed solution template.

S.No.	Parameter	Description
1.	Problem Statement (Problem to be solved)	Non communicable illnesses are the leading cause of early death, and CKD is the leading non communicable disease. Chronic Kidney Disease is a major concern for the global health care system. People with CKD must focus on implementing proven, cost-effective therapies to as many people as possible while taking into consideration restricted needs, human and financial resources. Chronic kidney disease (CKD) is now wreaking havoc on society and is spreading at an alarming rate. Various efforts have been undertaken to advance early therapy to prevent the condition from progressing to chronic disease.some of the negative outcomes can be avoided with early identification and treatment.
2.	Idea / Solution description	The existing system of diagnosis is based on the examination of urine with the help of serum creatinine level. Many medical methods are used for this purpose such as screening, ultrasound method. In screening, the patients with hypertension, history of cardiovascular disease, disease in the past, and the patients who have relatives who had kidney disease are screened. The proposed technique includes the calculation of the estimated GFR from the serum creatinine level, and measurement of urine albumin-to-creatinine ratio (ACR). This paper focuses on machine learning techniques like ACO, SVM and ensemble methods by minimizing the features and selecting best features to improve the accuracy of prediction.
3.	Novelty / Uniqueness	Only certain attributes are selected using feature analysis and the proposed solution uses ensemble methods for analysis. Down staging (increasing the proportion of CKD detected at an early stage) is achieved.

4.	Social Impact / Customer Satisfaction	Gradual loss of the kidney function can lead to end stage kidney disease (ESKD) in CKD patients, precipitating the need for kidney replacement therapy (KRT). Timely intervention in those CKD patients who have a high risk of ESKD may not only improve these patient's quality of life by delaying the disease progression, but also reduce the morbidity, mortality and healthcare costs resulting from KRT.
5.	Business Model (Revenue Model)	Can generate revenue through direct customers and can collaborate with care sector and generate revenue from their customers.
6.	Scalability of the Solution	An automated virtual system to classify CKD is still not entirely convincing or decisive to the vast majority of doctors and medical personal. But with more data, efficiency, and more accuracy, a future of automated artificial medical assistant can become a reality. In the future, the information-driven approach may be used to remove uncertainty as a legal system based on expertise.