Project Design Phase-I
Proposed Solution

Date	23 September 2022
Team ID	PNT2022TMID36023
Project Name	Project - 2665-1658480813
Maximum Marks	2 Marks

Proposed Solution Template:

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

S.No.	Parameter	Description
1.	Problem Statement (Problem to be solved)	Diabetic Retinopathy is a common complication of diabetes mellitus, which causes lesions on the retina that affect vision. If it is not detected early, it can lead to blindness. This project focuses on detecting such underlying lesions that could potentially result in blindness.
2.	Idea / Solution description	Diabetes is a globally prevalent disease that can cause visible microvascular complications such as diabetic retinopathy and macular edema in the human eye retina, the images of which are today used for manual disease screening and diagnosis. This labor-intensive task could greatly benefit from automatic detection using deep learning techniques. This deep learning system could increase the cost-effectiveness of screening and diagnosis, while attaining higher than recommended performance.
3.	Novelty / Uniqueness	The deep learning system identifies referable diabetic retinopathy comparably or better than presented in the previous studies, we try to use different screening and clinical grading systems for diabetic retinopathy and macular edema classification for accurately classifying images according to clinical five-grade diabetic retinopathy. We also present what preprocessing and regularization steps to the images need to be done for the good functionality of the deep learning system and investigate systematically how the size with a much smaller number of images used in training affects its performance.
4.	Social Impact / Customer Satisfaction	The development of Diabetic Retinopathy (DR) initiates at least seven years before type 2 diabetes is diagnosed clinically, hence early detection in a patient is vital. By identifying patients with retinopathy at the time of Diabetic mellitus diagnosis , loss of their vision is prevented. This project aids in making prompt

		assessments of patients diagnosed with DM2 and hence saving many people's vision.
5.	Business Model (Revenue Model)	Deep learning neural networks mimic the decision-making processes of the human brain by making a series of calculations to reach a conclusion and it can analyse massive datasets far faster than a human. Embedding Deep Learning across your business has the power to enhance differentiation and competitiveness, increase productivity, influence retention, and even change the course of disease. Integrating this model in hospitals will increase the rate of patients which will automatically increase the organization's revenue.Detecting the problem early for a patient increases the trust and the connection with hospital which leads to a good bond between patients and the hospital.
6.	Scalability of the Solution	The system offers a better solution for diabetic retinopathy and can be detected at an early stage. The system, developed using deep learning technology that can be implemented on a large scale. It is more adaptable to new images and datasets because it was built with a versatile dataset. Thus, this system can be used to detect diabetic retinopathy early in real-time for new variations.