Project Design Phase-I
Proposed Solution

Date	04 November 2022
Team ID	PNT2022TMID20861
Project Name	Deep Learning Fundus Image Of Early Detection of Diabetic Retinopathy
Maximum Marks	2 Marks

Proposed Solution Template:

The main aim of this project is to create an appropriate machine learning model to detect Diabetic Retinopathy as soon as early .

S.No.	Parameter	Description
1.	**Problem Statement (Problem to be solved)**	Diabetic retinopathy is a diabetes complication that affects eyes. Considering the fact that Retina is the sensitive part it can result in blurry, less intense eye sight and it can also result in disappearing of eye sight. At first, diabetic retinopathy might cause no symptoms or only mild vision problems. As time goes on, the state of this issue can worsen and lead to partial and then complete blindness to the individual which must be taken care of beforehand to get better at early stages. The condition can develop in anyone who has type 1 or type 2 diabetes. Analysis of fundus image for early detection of Diabetic Retinopathy firstly Analyse the level of DR and To detect whether DR is present or not.
2.	**Idea / Solution description**	The idea or the solution is to detect the Diabetic Retinopathy from the fundus image dataset as early as possible so that peoples/patients can proceed to their required treatments and prevent vision impairment or permanent vision loss. So, deep learning techniques can be used for early detection of diabetic retinopathy that can prevent blindness and other eye related diseases. The deep learning models like

		Resnet-50, Alexnet, VGG16, Google-Net, U-Net are under study as of now. After completion of data pre-processing, the model will be trained and tested using the dataset Images. In this system we will integrate it with a user interface using flask.
3.	**Novelty / Uniqueness**	This model provides the patient with the result whether they have serious condition or normal condition. The prediction comes with different levels of illness helps to diagnose properly.
4.	**Social Impact / Customer Satisfaction**	This model can detect the level of diabetic retinopathy from early-to-late stages with all clinical grades of the customer.Reduction of Diabetic Retinopathy risk.Provides Digital Assistance.Very helpful in making decisions faster.Can be used 24x7.
5.	**Business Model (Revenue Model)**	We can collaborate with the health care centres and diabetic diagnosis centres for regular screening of diabetic retinopathy whenever the diabetic patient comes to check their diabetic level. 
6.	**Scalability of the Solution**	The solution with the transfer learning model offers a better solution for diabetic retinopathy and can be detected at an early stage. The model developed using deep learning technology can be implemented on many clinical examinations. There are more and more ways for the scalability of the solution in which the model can be easily integrated & adapted with future technologies.