Project Design Phase-I
Proposed Solution Template

Date	10 October 2022
Team ID	PNT2022TMID24431
Project Name	Project – Deep Learning Fundus Image Analysis for Early Detection of Diabetic Retinopathy
Maximum Marks	2 Marks

Proposed Solution Template:

S.No.	Parameter	Description
1.	Problem Statement (Problem to be solved)	Diabetic retinopathy is a diabetes complication that affects eyes. It's caused by damage to the blood vessels of the light-sensitive tissue at the back of the eye (retina). At first, diabetic retinopathy might cause no symptoms or only mild vision problems. But it can lead to blindness. The condition can develop in anyone who has type 1 or type 2 diabetes. The longer you have diabetes and the less controlled your blood sugar is, the more likely you are to develop this eye complication
2.	Idea / Solution description	Diabetic retinopathy is not a reversible process, and treatment only sustains vision. DR early detection and treatment can significantly reduce the risk of vision loss. The manual diagnosis process of DR retina fundus images by ophthalmologists is time, effort and cost-consuming and prone to misdiagnosis unlike computer-aided diagnosis systems. So, deep learning techniques can be used for early detection of diabetic retinopathy that can prevent blindness and other eye related diseases.
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	Since, Diabetic retinopathy is irreversible, early detection helps many people from losing eyesight and other complicated diseases. The manual screening costs more than this model hence it is more feasible for customers that they can take this screening without any hardships

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. We can create awareness among people cause many people have no idea about the effects diabetic retinopathy, it may results in many screening tests in future.
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. This system is versatile as it can learn from any datasets. It gives higher performance than manual examination.