

## Project Design Phase

### Proposed Solution

Date	14 February 2026
Team ID	LTVIP2026TMIDS88398
Project Name	Deep Learning Fundus Image Analysis for Early Detection of Diabetic Retinopathy
Maximum Marks	2 marks

#### Proposed Solution:

S.No.	Parameter	Description
1.	Problem Statement (Problem to be solved)	Diabetic Retinopathy is a leading cause of blindness among diabetic patients. Early detection is essential, but manual retinal screening is time-consuming, costly, and dependent on specialist availability, especially in rural areas.
2.	Idea / Solution description	An AI-powered Deep Learning web application that analyzes fundus retinal images using a trained Xception CNN model and automatically classifies the stage of Diabetic Retinopathy into five categories (No DR, Mild, Moderate, Severe, Proliferative).
3.	Novelty / Uniqueness	Integration of Deep Learning-based automated image classification with a user-friendly web interface to enable fast, scalable, and accessible DR screening while supporting ophthalmologists with AI-assisted decision-making.
4.	Social Impact / Customer Satisfaction	Helps prevent vision loss through early detection, reduces screening time, supports rural healthcare accessibility, lowers patient burden, and increases patient confidence through quick and accurate diagnosis.
5.	Business Model (Revenue Model)	Revenue generation through hospital licensing, subscription-based SaaS model, per-scan usage charges, and integration with healthcare platforms as an AI diagnostic support tool.
6.	Scalability of the Solution	Deployable on cloud platforms to support multiple users simultaneously and scalable across hospitals, clinics, and telemedicine platforms for nationwide or global adoption.

