Project Design Phase - 1

Proposed Solution

Date	16 October 2022
Team ID	PNT2022TMID36211
Project Name	Deep Learning Fundus Image Analysis for Detection of Diabetic Retinopathy
Maximum Mark	2 Mark

Proposed Solution :

S.No	Parameter	Description
1.	Problem Statement (Problem to be Solved)	Diabetic Retinopathy is a common complication of diabetes mellitus, Diabetic Retinopathy mutilates the retinal blood vessels of a patient having diabetes. This causes damages to retinal blood vessels which lead to imperfect vision and if it is not detected early stages , it can lead to blindness. The early stage of Diabetic Retinopathy does not have any Symptoms, so it is important to identify microaneurysms and hemorrhages to detect the early stage of Diabetic Retinopathy. Unfortunately, Diabetic Retinopathy is not a reversible process Diabetic Retinopathy early detection and treatment can significantly reduce the risk of vision loss.
2.	Idea / Solution description	Existing methods are lacking in the earlier detection.Because preprocessing techniques used in those methods are not effective to analyze such smaller features. We opt to use multi-layer neural networks as deep Neural network. In the fact that data is Image, the best type of neural network that we use to process is Convolutional Neural Networks. First the data preprocessing is done to the images (our dataset) it is highly recommended, For better accuracy to be

		achieved. As we have to do for most of the data, normalization plays an important role in our process. After preprocessing and normalizing, the prepared dataset could be used as input to our deep convolutional neural network. Then deep NN will run and fit our data and then the result will be produced by that. This report will cover steps how this deep convolutional network to be implemented
3.	Novelty / Uniqueness	One of the most important decision had to be made is which programming language can be used for satisfying our goal for extracting knowledge from our data. The suitable programming language is Python. Because it has ,a lot of tools and framework to create a strong ANN. IBM Waston is also use to predict the future outcomes, automate complex processes and optimize user's time. The result accuracy can so be increased from the existing codes which are proposed.
4.	Social Impact / Customer Satisfaction	This may help the Diabetic patient to detect DR in early stages by health camps and in regular interval of checkup with their retinal images.
5.	Business Model (Revenue Model)	Can be collaborated with the Diabetics Diagnosis center for regular check up. Government camps and NGO healthcare camps can be conducted for awareness
6.	Scalability of the Solution	The project will help as to detect DR more prominently then the existing system. It can also produce a result with specific stage of Diabetic Retinopathy.