**Project Title: Project Design Phase-I** - **Solution Fit**  **Team ID:** PNT2022TMID31210

Deep Learning Fundus Image Of Early Detection of Diabetic Retinopathy

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| **1.PATIENTS SEGMENT**  The abnormality or the presence of lesions can be detected using the fundus image of the patient’s eye.  The early detection important for the diabetic patients as diabetic retinopathy is irreversible.  Hence early detection and diagnosis is a concerned solution. | **5. AVAILABLE SOLUTIONS**  Laser treatment to treat the growth of new blood vessels at the back of the eye (retina) in cases of proliferative diabetic retinopathy.  Eye injections - to treat severe maculopathy that's threatening your sight. | **9. PROBLEM ROOT CAUSE**  Diabetic retinopathy is caused by changes in the blood vessels of the retina, the light sensitive layer of tissue at the back of the inner eye.  Blockage of the tiny blood vessels that nourish the retina, cutting off its blood supply. |
| **2. PROBLEMS**  Severity of the eye illness due to diabetic retinopathy  High chances of losing vision.  Keen diagnosis to be done on diabetic patients. | **6.CUSTOMER CONSTRAINTS**  Lack of awareness of such severity.  Utilizes a strong healthcare infrastructure, advanced technology, and adequate funding.  Not Cost effective for the annual screening. | **10. SOLUTION**  Our solution is to make use of a deep learning model that detects the severity of the diabetic retinopathy among diabetic patients with fundus image screened.  The apt diagnosis to be done after the early detection. |
| **3. TRIGGER**  The triggers in diabetic retinopathy patients are:  Spots or dark strings floating in your vision  (floaters) - Blurred vision.  Fluctuating vision.  Dark or empty areas in vision.  Vision loss. | **7. BEHAVIOUR**  Early detection of diabetic retinopathy using the fundus images.  Consumes less time on detection than in the manual examination.  High accuracy in detection of lesions. |  |
| **4. EMOTIONS: BEFORE /**  **AFTER**  -Before: Adverse emotional responses include fear, anxiety.  Vulnerability, guilt, loss of confidence, anger, stress and self perception issues.  After: Early detection and diagnosis gives sense of hope among patients | **8.CHANNELS OF BEHAVIOUR**  Regular checkups and examinations are to be done in the regular interval time.  Proper diagnosis should be done. |  |

