**Project Design Phase-I**

PROBLEM FIT SOLUTION

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| Date | 1 October 2022 |
| Team ID | PNT2022TMID35900 |
| Project Name | Deep Learning Fundus Image Analysis for Early Detection of Diabetic Retinopathy. |

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| 1. **PATIENTS SEGMENTS**     This method can potentially be utilized to monitor and regulate patients. An ophthalmologist generally determines the seriousness of the retinopathy of the eye by directly examining color photos and evaluating them by visually inspecting the fundus. |
| 1. **PROBLEM/PAINS**   There are 4 stages namely mild NPDR, moderate NPDR, and proliferative diabetic  retinopathy. No treatment is usually done at this stage though there is evidence that anti-vascular endothelial growth factor (VEGF) injections may help decrease the severity of retinopathy and lower the risk of vision complications. |
| 1. **TRIGGERS TO ACT**   Diabetic Retinopathy is best diagnosed with a comprehensive dilated eye exam.  For this exam, drops placed in patients’ eyes widen(dilate) their pupils to know a better view inside the patient’s eyes. |
| 1. **EMOTIONS**   Diabetic retinopathy (DR) is the most common cause of blindness in the working population of the United States and of the European Union. Early detection ('screening') and timely treatment have been shown to prevent visual loss and blindness in patients with retinal complications of diabetes. |
| 1. **AVAILABLE SOLUTIONS**   Non-efficient image processing algorithms were used in earlier systems. This traditional  approach gives lower accuracy and is time-consuming. This drawback of the existing system propelled us towards the idea of developing a system that could ease this effort. |
| **6. PATENTS LIMITATIONS**  Diabetes-affected patients need to keep track of their dilated exams at least once a year. |
| 1. **BEHAVIOR**   In our project, we identify the patient’s diseases using fundus images. Then it recommends the treatment to be used. Our project’s accuracy is more because we are using Artificial Intelligence. |
| **8.CHANNELS OF BEHAVIOR**  Early detection and treatment can usually prevent severe vision loss.  Diabetic Retinopathy includes- Effective diabetes management and Regular eye examinations. This will help the patients to delay the development of retinopathy. |
| **9. PROBLEM ROOT CAUSE**  Diabetic retinopathy is caused by high blood sugar due to diabetes. Over time, having too much sugar in your blood can damage your retina — the part of your eye that detects light and sends signals to your brain through a nerve in the back of your eye (optic nerve). |
| **10. YOUR SOLUTION**  Patients reduce your risk of developing diabetic retinopathy or help stop it from getting worse, by keeping your blood sugar levels, blood pressure, and cholesterol levels under control. This can often be done by making healthy lifestyle choices, although some people will also need to take medication. |