

Project Design Phase
Problem – Solution Fit Template

Date	08/02/2026
Team ID	LTVIP2026TMIDS83275
Project Name	Deep Learning Fundus Image Analysis for Early Detection of Diabetic Retinopathy
Maximum Marks	2 Marks

Problem – Solution Fit Template:

• **Solving Complex Problems:**

This deep learning system addresses the high-variability and expertise-dependent nature of diabetic retinopathy diagnosis by transforming complex retinal image patterns into structured, data-driven severity predictions. It reduces diagnostic subjectivity and converts visual medical "noise" into accurate, automated classification results suitable for screening environments.

• **Increasing Solution Adoption:**

By integrating into existing hospital workflows and digital screening systems, the model works with standard fundus image formats (.jpg, .png) captured through retinal cameras. The web-based interface ensures that healthcare professionals can use the tool without learning new complex systems, making adoption seamless and non-disruptive.

• **Sharpening Communication:**

The system identifies critical healthcare triggers — such as routine diabetic checkups, vision complaints, or community screening camps — to provide early risk detection feedback. It shifts stakeholders from a state of uncertainty and delayed diagnosis to timely awareness and proactive treatment planning.

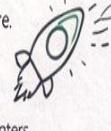
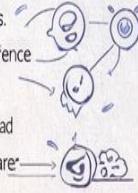
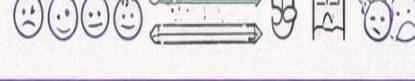
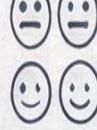
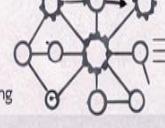
• **Increasing Touch-points & Building Trust:**

By solving the frequent problem of delayed diagnosis and human error in manual screening, the model enhances trust through consistent prediction accuracy and quick turnaround time. Over time, repeated reliable results increase confidence among healthcare providers and patients.

• **Improving the Existing Situation:**

The system moves the screening process from purely specialist-dependent evaluation toward an AI-assisted, scalable healthcare solution. It supports inclusive medical access, especially in rural or under-resourced areas where ophthalmologists are limited, enabling early intervention and reducing preventable blindness.

Template:

Early Detection of Diabetic Retinopathy		Problem-Solution Fit
Drafting CS, Rethinking CS	CS	AS
Customer Segment(s)	Customer Constraints	Available Solutions
<ul style="list-style-type: none"> Ophthalmologists Diabetologists Hospitals & Eye Clinics Rural Healthcare Centers Government Screening Programs Diabetic Patients (Indirect beneficiaries) Medical Research Institutions 	<p>What constraints prevent your customer from taking action or limit their chains of solution? i.e., spending power, budget, location, network connection, available services.</p>	<p>Which solutions are suitable for the customers when they face the problem? Prevent getting prevalence what time? If they solve are your solution trees? How do these solutions save money when compared to what you offer?</p> <p>Limitations:</p> <ul style="list-style-type: none"> Time-consuming → Subjective interpretation, Subjective interpretation: ↳ Not scalable: Not scalable → Requires expert presence ↳ Handwritten note: "h"
Jobs-to-be-Done / Problems	Problem Root Cause	Problem Root Cause
<p>Which hypothesis/hypothesis/problem(s) do you address for your customers?</p> <ul style="list-style-type: none"> Early detection of diabetic retinopathy Reduce workload of ophthalmologists Improve diagnostic accuracy Enable mass screening programs Provide quick, and reliable results Prevent vision loss in diabetic patients 	<p>What is the reason for this problem?</p> <p>↳ smile is their core application of people to provide demand for this job?</p> <ul style="list-style-type: none"> Increasing diabetic population Shortage of trained ophthalmologists Manual diagnosis dependent on expertise Human fatigue and error Delayed screening due to hospital overload Limited AI adoption in public healthcare centers  	<p>What is the reason for this problem?</p> <p>↳ smile is their core application of people to provide demand for this job?</p> <ul style="list-style-type: none"> Current population Shortage of trained ophthalmologists Manual diagnosis dependent on expertise Human fatigue and error Delayed screening due to hospital overload Limited AI adoption in primary healthcare 
Triggers	Your Solution	Behavior
<ul style="list-style-type: none"> Routine diabetic health checkup Vision blur symptoms Community screening programs Government health initiatives Awareness campaigns about diabetic complications 	<p>If you are working on an existing system, lay down your current solution first. In this, visually your resultant solution of your own care and the byproduct one place creates sucking the patient interest. This is also, above yet, source to high yields. Define and articulate an innovative strategy (innovations).</p> 	<p>BEHAVIOR:</p> <ul style="list-style-type: none"> Early detection: on-duty attention problems Manual image examination Delayed diagnosis Reliance on expert opinion Preventive healthcare approach 
Emotions: Before / After	Your Solution	Channels of Behavior
<ul style="list-style-type: none"> Fear of blindness Anxiety about diagnosis Uncertainty in early stages Dependence on specialist availability Feeling of healthcare security 	<p>AI-powered Deep Learning system-</p> <ul style="list-style-type: none"> Accepts retinal fundus images Performs automated preprocessing Uses CNN model for classification Predicts DR severity level Scalability concern in manual inspection  <p>Value proposition: Transforms manual, expert-dependent screening into fast, accurate, AI-assisted diagnosis; reduced snubbing proportion.</p>	<p>CH</p> <p>8.1 ONLINE</p> <ul style="list-style-type: none"> Health Management Systems Usage decent enterprise platforms Cloud-based healthcare systems Remote prevention Intermediaine platforms  <p>8.2 OFFLINE</p> <ul style="list-style-type: none"> Mobile screening camps Community healthcare centers

References:

1. <https://www.ideahackers.network/problem-solution-fit-canvas/>
 2. <https://medium.com/@epicantus/problem-solution-fit-canvas-aa3dd59cb4fe>