Project Design Phase
Problem – Solution Fit Template

Date	15 February 2025
Team ID	LTVIP2025TMID46233
Project Name	Transfer Learning-Based Classification of Poultry Diseases for Enhanced Health Management
Maximum Marks	2 Marks

Problem – Solution Fit Template:

Section	Description
Customer Segment	Poultry farmers, rural livestock health workers, and small-scale poultry farm managers
Customer Problem	Difficulty in early and accurate detection of poultry diseases due to lack of tools, expertise, and access to vets
Existing Alternatives	Manual diagnosis, veterinary visits (delayed or expensive), traditional methods, or no diagnosis at all
Limitations of Alternatives	Time-consuming, costly, often inaccurate, and inaccessible in rural or remote areas
Proposed Solution	AI-powered image classification system using transfer learning to detect poultry diseases via a mobile app
Key Features	Image-based detection, offline functionality, local language support, high accuracy, real-time results
How it Solves the Problem	Enables fast, affordable, and reliable diagnosis without the need for expert intervention or lab testing

Purpose:

❖ **Identify the Problem:**
Poultry farmers struggle to diagnose diseases early due to lack of affordable and accessible diagnostic tools.

❖ **Define the Goal:**
Build an AI-based solution that can detect and classify poultry diseases using image data.

❖ **Use Transfer Learning:**
Implement a pre-trained model (e.g., ResNet, MobileNet) to achieve high accuracy with limited training data.

❖ **Ensure Accessibility:**
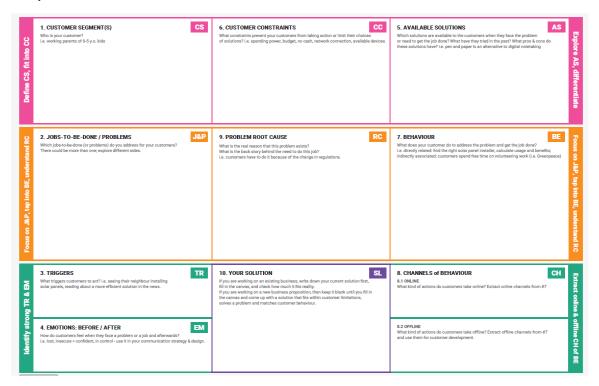Develop the system as a mobile-friendly application with offline capability for rural use.

❖ **Improve Farmer Outcomes:**
Enable early disease detection, reduce livestock mortality, and increase farm productivity.

❖ **Empower Rural Communities:**
Provide a low-cost, easy-to-use tool that supports decision-making without the need for expert intervention.

Template:

	1. CUSTOMER SEGMENT(S) `CS`	6. CUSTOMER CONSTRAINTS `CC`	5. AVAILABLE SOLUTIONS `AS`	
Define CS, fit into CC	Who is your customer? i.e. working parents of 0-5 y.o. kids	What constraints prevent your customers from taking action or limit their choices of solutions? i.e. spending power, budget, no cash, network connection, available devices.	Which solutions are available to the customers when they face the problem or need to get the job done? What have they tried in the past? What pros & cons do these solutions have? i.e. pen and paper is an alternative to digital notetaking	**Explore AS, differentiate**
Focus on J&P, tap into BE, understand RC	2. JOBS-TO-BE-DONE / PROBLEMS `J&P` Which jobs-to-be-done (or problems) do you address for your customers? There could be more than one; explore different sides.	9. PROBLEM ROOT CAUSE `RC` What is the real reason that this problem exists? What is the back story behind the need to do this job? i.e. customers have to do it because of the change in regulations.	7. BEHAVIOUR `BE` What does your customer do to address the problem and get the job done? i.e. directly related: find the right solar panel installer, calculate usage and benefits; indirectly associated: customers spend free time on volunteering work (i.e. Greenpeace)	**Focus on J&P, tap into BE, understand RC**
Identify strong TR & EM	3. TRIGGERS `TR` What triggers customers to act? i.e. seeing their neighbour installing solar panels, reading about a more efficient solution in the news. 4. EMOTIONS: BEFORE / AFTER `EM` How do customers feel when they face a problem or a job and afterwards? i.e. lost, insecure > confident, in control - use it in your communication strategy & design.	10. YOUR SOLUTION `SL` If you are working on an existing business, write down your current solution first, fill in the canvas, and check how much it fits reality. If you are working on a new business proposition, then keep it blank until you fill in the canvas and come up with a solution that fits within customer limitations, solves a problem and matches customer behaviour.	8. CHANNELS of BEHAVIOUR `CH` 8.1 ONLINE What kind of actions do customers take online? Extract online channels from #7 8.2 OFFLINE What kind of actions do customers take offline? Extract offline channels from #7 and use them for customer development.	**Extract online & offline CH of BE**

This project focuses on helping **rural poultry farmers** who struggle to diagnose poultry diseases early due to lack of access to veterinary care and diagnostic tools. They often rely on delayed or inaccurate methods like manual checks or local remedies.

The main **trigger** for action is visible symptoms in birds or nearby disease outbreaks. However, **constraints** like limited income, low digital literacy, and poor network access prevent timely responses.

The **root cause** is the absence of affordable, real-time diagnostic support. As a **solution**, we offer an AI-powered mobile app using **transfer learning** to classify diseases from images—even offline— allowing quick, accurate, and low-cost diagnosis.

This empowers farmers to act early, reduce losses, and manage poultry health more effectively.