**PROJECT DESIGN**

**4.1 Problem – Solution Fit Template**

# **1. CUSTOMER SEGMENT(S) (CS)**

|  |  |
| --- | --- |
| Date | 16th June 2025 |
| Team ID | LTVIP2025TMID34447 |
| Project Name | Transfer Learning-Based Classification of Poultry Diseases for Enhanced Health Management |
| Maximum Marks | 2 Marks |

Rural poultry farmers, small-scale poultry business owners

# **2. JOBS TO BE DONE / PROBLEMS (J&P)**

• Unable to identify poultry diseases early  
• No quick access to veterinary help  
• Loss of birds results in financial loss

# **3. TRIGGERS (TR)**

• Seeing other farmers lose flocks  
• Noticing symptoms like rashes or weakness  
• Fear of disease spread

# **4. PROBLEM ROOT CAUSE (RC)**

• Lack of access to vets  
• No easy tool for disease detection  
• Farmers lack digital knowledge

**5. AVAILABLE SOLUTIONS (AS)**

• Traditional vet clinics (far away)  
• Manual observation (less accurate)  
• Some paid mobile apps (not affordable)

# **6. CUSTOMER CONSTRAINTS (CC)**

• Lack of smartphones/internet  
• Limited income  
• Lack of awareness of tech-based tools

# **7. YOUR SOLUTION (SL)**

• A simple web tool to detect poultry diseases using image upload  
• Uses AI model (VGG16) to predict disease from photo  
• Free, easy-to-use, works on mobile browser

# **8. BEHAVIOUR (BE)**

• Asking neighbors or local shop owners  
• Waiting until it's too late  
• Trial-and-error treatment

# **9. CHANNELS OF BEHAVIOUR (CH)**

• Local vet or nearby farmer  
• WhatsApp groups  
• Occasional search on Google or YouTube

**4.2 Proposed – Solution Fit Template**

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| Maximum Marks | 2 Marks |

|  |  |  |
| --- | --- | --- |
| S.No. | Parameter | Description |
| 1 | Problem Statement | Many poultry farmers struggle to detect diseases in chickens early due to lack of expertise and access to veterinary help. This leads to bird deaths and financial loss. |
| 2 | Idea / Solution Description | We are building a web-based tool where farmers can upload a chicken image. Our AI model (VGG16 with transfer learning) will analyze the image and predict the disease instantly. |
| 3 | Novelty / Uniqueness | Unlike traditional vet consultations, our solution is instant, remote, and image-based. It uses machine learning trained on poultry images, tailored for rural users. |
| 4 | Social Impact / Customer Satisfaction | This solution can help farmers reduce bird deaths, improve poultry health, and save money. It empowers rural farmers with access to modern technology in a simple way. |
| 5 | Business Model (Revenue Model) | Initially offered for free. Future plans could include paid features like detailed reports, vet consultation, disease trends, or mobile app version. |
| 6 | Scalability of the Solution | The model can be scaled to detect more poultry diseases and adapted for mobile apps. It can also expand to other livestock or crop disease detection. |

**4.3 Solution Architecture**

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| --- | --- |
| Date | 16th June 2025 |
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| Project Name | Transfer Learning-Based Classification of Poultry Diseases for Enhanced Health Management |
| Maximum Marks | 4 Marks |

**Purpose:**

Solution architecture helps bridge the gap between business problems and technology solutions. Its goals are to:  
• Find the best tech solution to solve existing business problems.  
• Describe the structure, behavior, and characteristics of the system to stakeholders.  
• Define features, development phases, and solution requirements.  
• Provide specifications to ensure the solution is well-defined, managed, and delivered.

**Architecture Overview:**

Our poultry disease detection system uses a 3-tier architecture that includes the frontend, backend logic, and a trained machine learning model for disease prediction. The user uploads an image of a poultry bird, which is processed and predicted using a transfer learning model (VGG16). The result is returned on the interface, and optionally stored.

