

Ideation Phase

Define the Problem Statements

Date	29 May 2025
Team ID	LTVIP2025TMID41443
Project Name	Transfer Learning-Based Classification of Poultry Diseases for Enhanced Health Management
Maximum Marks	2 Marks

Customer Problem Statement Template:

Create a problem statement to understand your customer's point of view. The Customer Problem Statement template helps you focus on what matters to create experiences people will love.

A well-articulated customer problem statement allows you and your team to find the ideal solution for the challenges your customers face. Throughout the process, you'll also be able to empathize with your customers, which helps you better understand how they perceive your product or service.

Example:

Problem Statement (PS)	I am (Customer)	I'm trying to	But	Because	Which makes me feel
PS-1	A rural poultry farmer with limited veterinary access	Quickly diagnose diseases in my poultry flock when birds show symptoms like lethargy, diarrhea, or reduced egg production	I struggle to identify the specific disease and appropriate treatment without professional veterinary consultation	Veterinary services are not readily available in my remote location, and delayed diagnosis leads to disease spread	Anxious and helpless, fearing significant economic losses and the health of my entire flock
PS-2	A commercial poultry farm manager	Implement proactive health	Current manual inspection methods are	Traditional diagnostic methods are not	Stressed about potential productivity

Problem Statement (PS)	I am (Customer)	I'm trying to	But	Because	Which makes me feel
	responsible for large-scale operations	monitoring and early disease detection across multiple sections of my farm	time-consuming and may miss early disease symptoms, leading to potential widespread outbreaks	scalable for large operations and rely heavily on human observation, which can be inconsistent	losses, reputation damage, and the financial impact of disease outbreaks on my business

Project Overview:

This project aims to develop a Transfer learning-based system for classifying poultry diseases into four categories: Salmonella, New Castle Disease, Coccidiosis, and Healthy. The solution involves creating a robust machine learning model that will be integrated into a mobile application. Farmers will be able to use this application to input data (e.g., symptoms, environmental conditions, and biological samples) and receive an immediate diagnosis along with suggested treatments. The ultimate goal is to provide farmers with a tool that enhances their ability to manage poultry health, thereby reducing disease impact and improving productivity.

Scenario 1: Outbreak in a Rural Community

A small rural community relies heavily on poultry farming for its livelihood. Recently, the farmers have noticed an increase in sick birds, exhibiting symptoms such as lethargy, diarrhea, and reduced egg production. Without immediate access to veterinary services, the farmers are struggling to diagnose the problem. Using the new mobile application, they input the observed symptoms and environmental data. The machine learning model quickly classifies the disease as Coccidiosis and provides recommendations for treatment and management. This allows the farmers to take swift action, reducing the spread of the disease and preventing further economic losses.

Scenario 2: Commercial Poultry Farm Management

A large commercial poultry farm has implemented the machine learning-based disease classification system to monitor the health of its flocks. Daily health checks are performed, and data is collected via the mobile application. One day, the system identifies symptoms consistent with New Castle Disease in a specific section of the farm. The early detection enables the farm management to quarantine the affected birds and implement control measures promptly, preventing a widespread outbreak and ensuring the overall health of the flock. This proactive approach not only saves costs but also maintains the farm's productivity and reputation.

Scenario 3: Research and Training for Veterinary Students

A veterinary school integrates the machine learning-based disease classification application into its curriculum. Students use the app to input data from case studies and real-world scenarios. Through this hands-on training, they learn how to diagnose diseases like Salmonella, New Castle Disease, and Coccidiosis using modern technology. The application also provides detailed information about each disease, treatment options, and management practices. This experience equips future veterinarians with valuable skills in utilizing advanced diagnostic tools, preparing them to better serve the poultry industry.