Project Phase Report

Project Title

Transfer Learning-Based Classification of Poultry Diseases for Enhanced Health Management

Team Name

AgroAI Innovators

Team Members

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Phase-1: Brainstorming & Ideation

Objective:

Identify the problem statement and define the purpose and impact of the project.

1. Problem Statement:

Poultry farmers often face difficulty in identifying diseases early, leading to reduced productivity and loss of livestock. There is a need for an accessible, AI-based solution that assists in early disease detection using images.

2. Proposed Solution:

Develop a deep learning-based image classification model using transfer learning to detect poultry diseases such as Salmonella, New Castle Disease, Coccidiosis, and Healthy state. The model is deployed via a web interface to allow farmers to upload images and get instant predictions.

3. Target Users:

• Poultry farmers

• Veterinary professionals

• Agro-based tech platforms

4. Expected Outcome:

An AI-powered tool that enhances poultry disease detection and helps reduce mortality and economic loss in poultry farming.

Phase-2: Requirement Analysis

Objective:

Define technical and functional requirements.

1. Technical Requirements:

• Python

• TensorFlow / Keras

• Flask (for web app)

• HTML/CSS (frontend UI)

• GitHub (version control)

• Render / Local server (deployment)

2. Functional Requirements:

• Upload image functionality

• Image classification (4 disease categories)

• Display predicted result

• Responsive UI

3. Constraints & Challenges:

• Limited dataset for disease classification

• Model performance on low-quality images

• Internet connectivity and deployment challenges

Phase-3: Project Design

Objective:

Create the system architecture and user flow.

1. System Architecture Diagram:

[User Upload Image] → [Flask App] → [TensorFlow Model] → [Prediction Result]

2. User Flow:

Home Page → Click "Predict" → Upload image → View Disease Prediction → Contact if needed

3. UI/UX Considerations:

• Clean, dark theme interface

• Glassmorphism for modern UI

• Accessible on desktop and mobile

Phase-4: Project Planning (Agile Methodologies)
Objective:

Divide tasks and plan development using sprints.

1. Sprint Planning:

• Sprint 1: Dataset prep & model training

• Sprint 2: Flask integration

• Sprint 3: UI development

• Sprint 4: Testing & Deployment

2. Task Allocation:

• Kalyan: Frontend & Flask integration

• [Others]: Model training / documentation

3. Timeline & Milestones:

• Week 1: Model ready

• Week 2: Flask app working

• Week 3: Complete UI

• Week 4: Final testing + video + upload

Phase-5: Project Development

Objective:

Build and integrate all project components.

1. Technology Stack Used:

• Python, TensorFlow, Flask, HTML, CSS, Git, Render

2. Development Process:

• Image preprocessing and augmentation

• Transfer learning using pre-trained model

• Flask API setup

• Frontend design using HTML/CSS

3. Challenges & Fixes:

• TensorFlow deployment version issue (fixed with compatible versions)

• Git conflicts while organizing into GitHub folders (resolved via CLI)

Phase-6: Functional & Performance Testing

Objective:

Validate the final product.

1. Test Cases Executed:

• Uploaded correct poultry image: Output matches disease

• Uploaded incorrect/invalid image: Handled error gracefully

• Tested on different browsers and screen sizes

2. Bug Fixes & Improvements:

• UI responsiveness

• Model accuracy improved by data augmentation

• Path errors in deployment resolved

3. Final Validation:

Model and UI match the expected functionality

4. Deployment:

Render (or local Flask deployment)

GitHub Repo: https://github.com/Kalyan4454/Transfer-learning-based-classification-of-poultry-diseases-for-enhanced-health-management

Final Submission Checklist

• Project Report
https://drive.google.com/drive/folders/1lbE6zJGKSY9mqNBvMpG1JHw_bp_oEcQH?usp=sharing

• Demo Video
https://drive.google.com/file/d/123S8on6IBQfU_srV51cqvEJg24whuWo9/view?usp=sharing

• GitHub Code Repository
https://github.com/Kalyan4454/Transfer-learning-based-classification-of-poultry-diseases-for-enhanced-health-management/tree/main/Project%20Files/Poultry_Health_Check

• PowerPoint Presentation

https://drive.google.com/file/d/1LVMtwwXmsLqkbUzD4pdrPJRrs9BsEiE_/view?usp=drive_link