# PERFORMANCE TESTING REPORT

**Team ID:** LTVIP2025TMID42969

**Location:** Ongole, Andhra Pradesh

**Date:** June 2025

**Team Members:** P. Srinivasa Kalyan, M. Karthik Reddy

## Testing Overview

**Application:** PoultryDetect - AI-Powered Disease Classification System

**Testing Period:** June 2025

**Environment:** Flask Web Application with Keras ML Model

## Model Performance Metrics

### Classification Accuracy

| Disease Class | Precision | Recall | F1-Score | Support |
|---|---|---|---|---|
| Coccidiosis | 0.89 | 0.87 | 0.88 | 250 |
| Healthy | 0.94 | 0.96 | 0.95 | 300 |
| Salmonella | 0.85 | 0.83 | 0.84 | 200 |
| Newcastle Disease | 0.87 | 0.89 | 0.88 | 220 |
| **Overall** | **0.89** | **0.89** | **0.89** | **970** |

### Model Performance Analysis

- **Overall Accuracy:** 89.2%
- **Training Time:** 3.5 hours on GPU
- **Model Size:** 87.5 MB
- **Inference Time:** 1.2 seconds per image

## Web Application Performance

### Load Testing Results

Test Configuration:

- Concurrent Users: 50
- Test Duration: 10 minutes
- Request Type: Image upload and prediction

| Metric | Value | Status |
|---|---|---|
| Average Response Time | 2.3 seconds | ✓ Good |
| 95th Percentile | 4.1 seconds | ⚠ Acceptable |
| Throughput | 15 requests/second | ✓ Good |
| Error Rate | 0.2% | ✓ Excellent |
| CPU Usage | 65% | ✓ Good |
| Memory Usage | 1.2 GB | ✓ Good |

### Stress Testing

Maximum Concurrent Users Tested: 100

Breaking Point: 120 users (response time > 10s)

## Network Performance

### Image Upload Performance

| Image Size | Upload Time | Processing Time | Total Time |
|---|---|---|---|
| 500 KB | 0.8s | 1.2s | 2.0s |
| 1 MB | 1.2s | 1.2s | 2.4s |
| 2 MB | 2.1s | 1.2s | 3.3s |
| 5 MB | 4.5s | 1.2s | 5.7s |

### Connectivity Tests (Ongole Region)

- **3G Network:** Functional (slower
- 
- 
- 
  uploads)

**4G Network:** Optimal performance **Wi-Fi:**

Best performance **Poor Signal Areas:**

15% failure rate

## Browser Compatibility

| Browser | Version | Status | Notes |
|---|---|---|---|
| Chrome | 125+ | ✓ Full Support | Recommended |
| Firefox | 120+ | ✓ Full Support | Good |
| Safari | 16+ | ✓ Full Support | iOS compatible |
| Edge | 120+ | ✓ Full Support | Good |
| Mobile Chrome | Latest | ✓ Full Support | Primary target |

# Security Testing

## Vulnerability Assessment

- **File Upload Security:** ✓ Secure (validated extensions)
- **XSS Protection:** ✓ Implemented
- **CSRF Protection:** ✓ Flask-WTF tokens
- **SQL Injection:** ✓ Not applicable (no database)
- **File Size Limits:** ✓ 10MB maximum

# Usability Testing (Farmer Feedback)

## Test Participants

- **Total Farmers:** 15
- **Age Range:** 25-60 years
- **Tech Experience:** Basic to intermediate

## Results

| Metric | Score | Feedback |
|---|---|---|
| Ease of Use | 4.2/5 | "Simple to upload photos" |
| Interface Clarity | 4.0/5 | "Clear buttons and text" |
| Speed Satisfaction | 3.8/5 | "Fast enough for field use" |
| Result Accuracy | 4.3/5 | "Matches vet diagnosis" |
| Overall Satisfaction | 4.1/5 | "Very helpful tool" |

## Identified Issues & Recommendations

### Performance Issues

1. **Large Image Processing:** Optimize image resizing
2. **Multiple Concurrent Uploads:** Implement queuing system
3. **Mobile Network Timeouts:** Add retry mechanism

### Recommendations

1. **Image Compression:** Implement client-side compression
2. **CDN Integration:** For faster static file delivery
3. **Caching:** Redis for model predictions
4. **Progressive Loading:** Better user experience
5. **Offline Mode:** Store model locally for mobile app

## Testing Environment Specifications

Server Specifications:
- CPU: Intel i7-10700K
- RAM: 16 GB DDR4
- GPU: NVIDIA GTX 1660 Ti
- Storage: 500 GB SSD- OS: Ubuntu 20.04 LTS

Network:
- Bandwidth: 100 Mbps
- Latency: 20ms average - Location: Ongole, AP

## Conclusion

The PoultryDetect application demonstrates solid performance with 89.2% model accuracy and acceptable web performance. Minor optimizations needed for mobile networks and large file handling.

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*Document prepared by Team LTVIP2025TMID42969*