Performance Testing Report

Team ID: LTVIP2025TMID44725

Location: Ongole, Andhra Pradesh

Date: June 2025

Team Members:

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Testing Overview

Application: Poultry Health App - AI-Powered Poultry Disease Detection System

Testing Period: June 2025

Environment: Flask Web Application with TensorFlow/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 sec	✓ Good
95th Percentile	4.1 sec	⚠ Acceptable
Throughput	15 req/sec	✓ Good
Error Rate	0.2%	✓ Excellent
CPU Usage	65%	✓ Good
Memory Usage	1.2 GB	✓ Good

Stress Testing

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

- 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

- 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)

Participants: 15 Farmers
Age Range: 25–60 years
Tech Experience: Basic to intermediate

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 Poultry Health App demonstrates strong model accuracy and reliable web performance. Minor improvements are recommended for large image handling and low-bandwidth environments.