PERFORMANCE TESTING REPORT

Team ID: LTVIP2025TMID42969

Location: Ongole, Andhra Pradesh

Date: June 2025

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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.

Document prepared by Team LTVIP2025TMID42969