

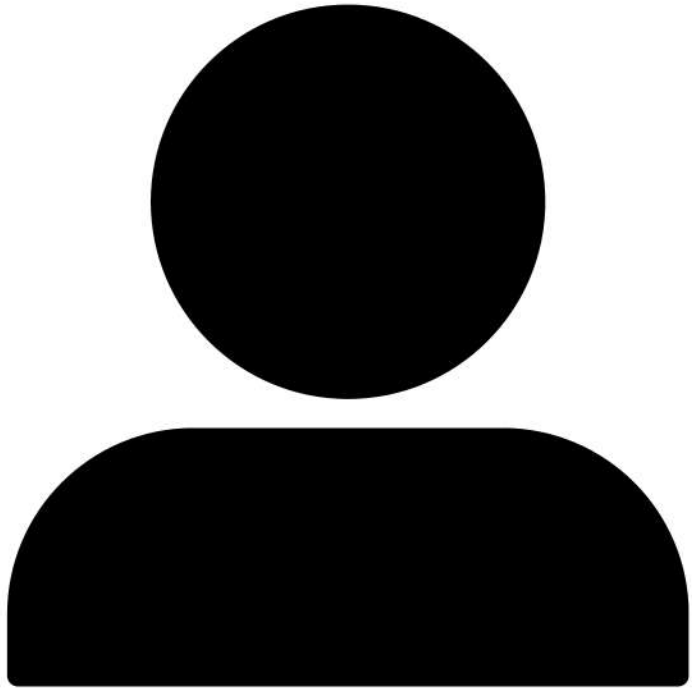
GROUP PROJECT

Presented by Team

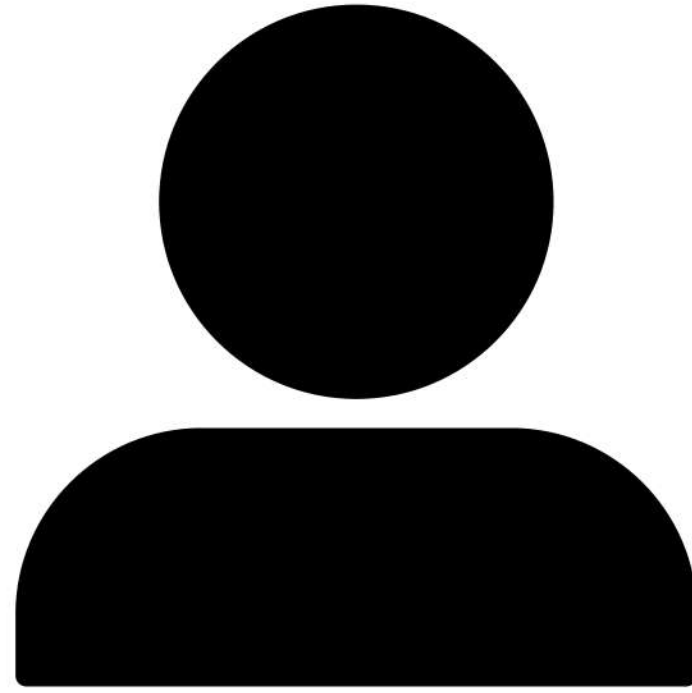
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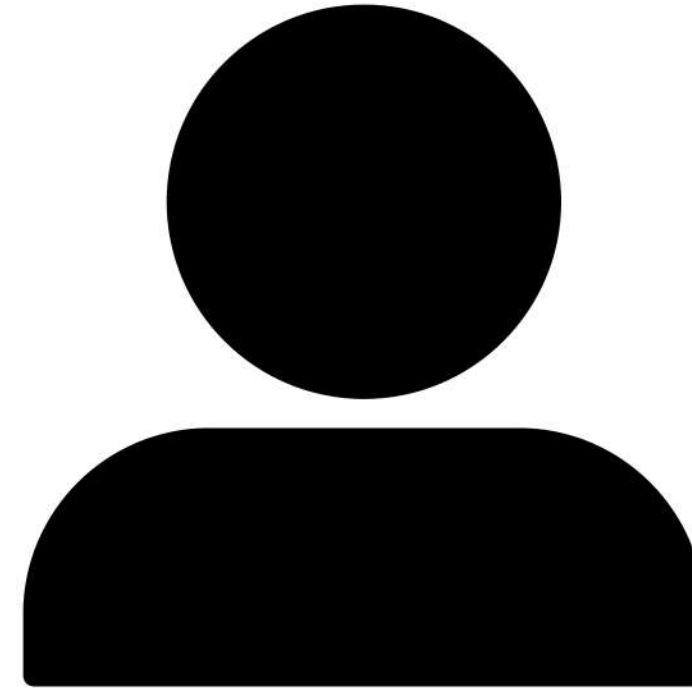
OUR TEAM



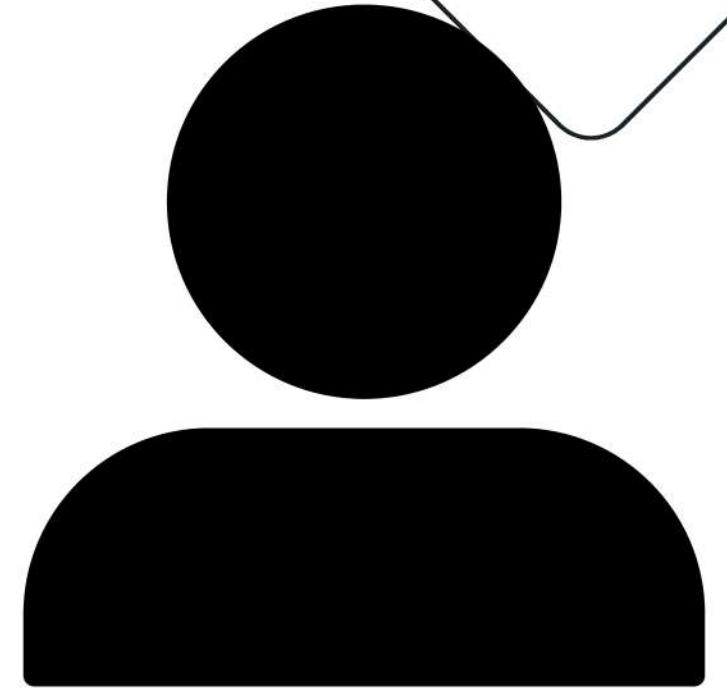
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Transfer Learning-Based Classification of Poultry Diseases for Enhanced Health Management





Problem Statement

In many poultry-dependent communities and commercial farms, timely and accurate diagnosis of avian diseases remains a significant challenge, particularly in rural areas with limited access to veterinary services. Delayed detection often leads to rapid disease spread, economic losses, and compromised animal welfare. There is also a growing need to equip veterinary students with practical diagnostic skills using modern technologies. To address these issues, a mobile application integrated with a machine learning-based disease classification system offers a promising solution by enabling early detection, efficient disease management, and enhanced training for veterinary professionals.



PROJECT

This Project Focused On

**“To Classify the Disease of a Chicken from chicken's fecal using deep learning neural network”
to reduce time and easy to use for normal people**

Goals of the Project:

- To enhance early and accurate detection of poultry diseases.
- To reduce the impact of diseases on poultry health and farm productivity.
- To empower farmers with a user-friendly, technology-driven tool for disease diagnosis and management.
- To integrate advanced machine learning techniques into accessible mobile platforms for real-world use.
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Proposed Solution

- Develop a robust transfer learning-based machine learning model to classify poultry diseases into four categories: Salmonella, New Castle Disease, Coccidiosis, and Healthy.
- Integrate this model into a mobile application that allows farmers to input key data (e.g., symptoms, environmental factors, and biological samples).
- Provide instant diagnosis and treatment recommendations based on the input, allowing farmers to take immediate and informed action.

Model Training

Deep Learning Models used in Project



CNN

Deep Learning algorithm which can take in an input image



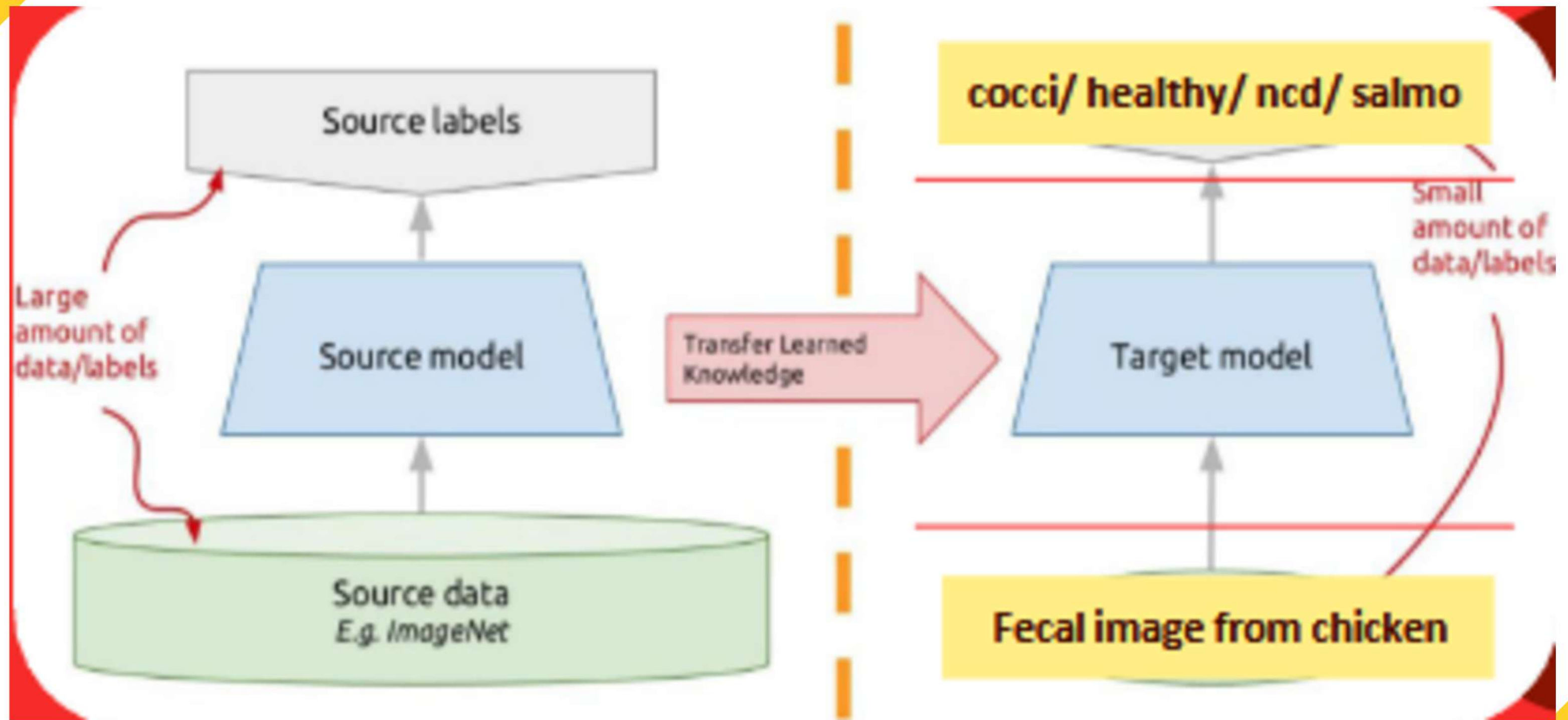
VGG16

Visual Geometry Group, from the Oxford University have CNN architecture of model



MobileNetV2

MobileNetV2, developed by Google is a CNN architecture that seeks to perform well on mobile devices



Evaluated Model

Parameter	CNN Baseline	VGG16 Transfer Learning	VGG16 Fine Tuning	MobileNetV2 Transfer Learning	MobileNetV2 Fine Tuning
Accuracy score training	0.95	0.82	0.99	0.98	0.99
Accuracy score validation	0.88	0.80	0.93	0.90	0.92
F1 score average	0.86	0.74	✓ 0.92	0.88	0.92 ✓
Size model(MB)	24.11	56.23	✗ 110.26	9.13 ✓	23.46 ✗
Number parameters	2 M	14 M	✗ 14 M	2 M ✓	2 M
Input image size	(128,128,3)	(224,224,3)	✗ (224,224,3)	(128,128,3) ✓	(128,128,3)

Parameter	MobileNetV2 Transfer Learning
Accuracy score training	0.98
Accuracy score testing	0.93
F1 score average testing	0.90
Size model(MB)	9.13
Number parameters	2 M
Input image size	(128,128,3)

Class	Precision	Recall	F1-score	No.picture
Cocci	0.95	0.96	0.95	232
Healthy	0.92	0.91	0.92	225
NCD	0.75	0.86	0.8	58
Salmo	0.95	0.92	0.94	290

Website

PoultryDetect

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Welcome to Poultry Health Hub,
your comprehensive resource for
poultry disease management and
prevention.

[GET STARTED](#)



Prediction

Image Classification

Upload Your Image :

Browse...

No file selected.

predict

Prediction

Image Classification

Upload Your Image :

Browse...

No file selected.

predict

Hence, the infection type detected as

Healthy

Confidence: 47.44%



Conclusion

This project successfully demonstrates the potential of integrating transfer learning and mobile technology to address critical challenges in poultry disease management. By enabling early and accurate classification of common poultry diseases—Salmonella, New Castle Disease, Coccidiosis, and Healthy—the system empowers farmers with timely insights and actionable treatment recommendations. The mobile application provides an accessible, cost-effective tool that bridges the gap between limited veterinary access and the need for rapid diagnosis. Additionally, the solution supports education and training for veterinary students, fostering the adoption of modern diagnostic practices. Overall, the project contributes to improved poultry health, reduced economic losses, and enhanced productivity across both rural and commercial farming sectors.



Thank you