CATTLE DISEASE PREDICTION SYSTEM USING MACHINE LEARNING

Prepared by:

Ahmed Mustafa Alazab

Mohamed Eldesoky Fadl

Ahmed Hassan Mahfouz

Ebrahem Mahmoud AbdelGawad

Aboelftouh abdelsamad Aboelftouh

Prepared for:

DR: Sara Elmetwally

Eng: Leqa Hany

Introduction

The livestock industry is vital to the global economy, providing food, income, and resources for millions of people. However, diseases among cattle can lead to severe economic losses, reduced productivity, and increased mortality rates. Early detection and intervention are crucial to mitigate these impacts.

This proposal outlines the development of a Cattle Disease Prediction System powered by machine learning to assist farmers and veterinarians in identifying cattle diseases early, enabling timely and effective treatment.

Problem Statement

Cattle diseases are often diagnosed late due to:

- Lack of accessible and affordable veterinary services, especially in rural areas.
- Farmers' reliance on visual symptoms or traditional methods, which can be inaccurate.
- Limited use of technology for disease management in livestock.

Impact:

- Delayed treatment leads to increased mortality rates and reduced milk and meat production.
- Financial losses due to high treatment costs and loss of diseased animals.
- Risk of disease outbreaks affecting entire herds or communities.

The need for a technology-driven solution to address these challenges is critical.

Goals

The primary goals of the project are:

1. Develop an intelligent prediction system: Create a machine learning-based application that predicts cattle diseases based on symptoms provided by the user.
2. Improve disease management: Reduce financial losses and mortality rates through early detection and intervention.
3. Enhance accessibility: Design a user-friendly interface to ensure ease of use for farmers, even in rural settings.

Related Work

Several studies and tools have explored the use of machine learning in agriculture and livestock management:

1. Disease Detection in Poultry: Algorithms like decision trees and random forests have been used to predict diseases in poultry, showing high accuracy but limited applicability to cattle.
2. Cattle Management Apps: Existing applications provide general livestock management tools but lack specialized disease prediction features.
3. AI in Agriculture: Various AI-driven solutions have been implemented in crop monitoring and yield prediction but are yet to be widely applied for livestock disease prediction.

Gap Identified:

Despite progress in AI applications for agriculture, there is a lack of dedicated solutions for predicting cattle diseases with a focus on farmer usability and affordability