ANIMAL DISEASE DIAGNOSTIC SYSTEM

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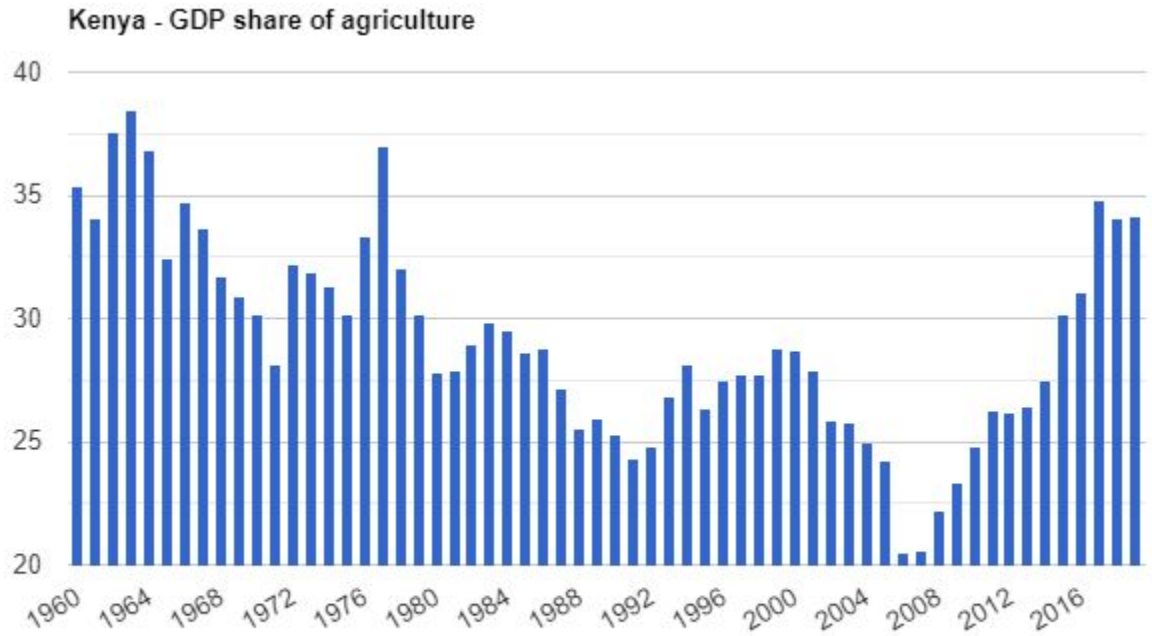
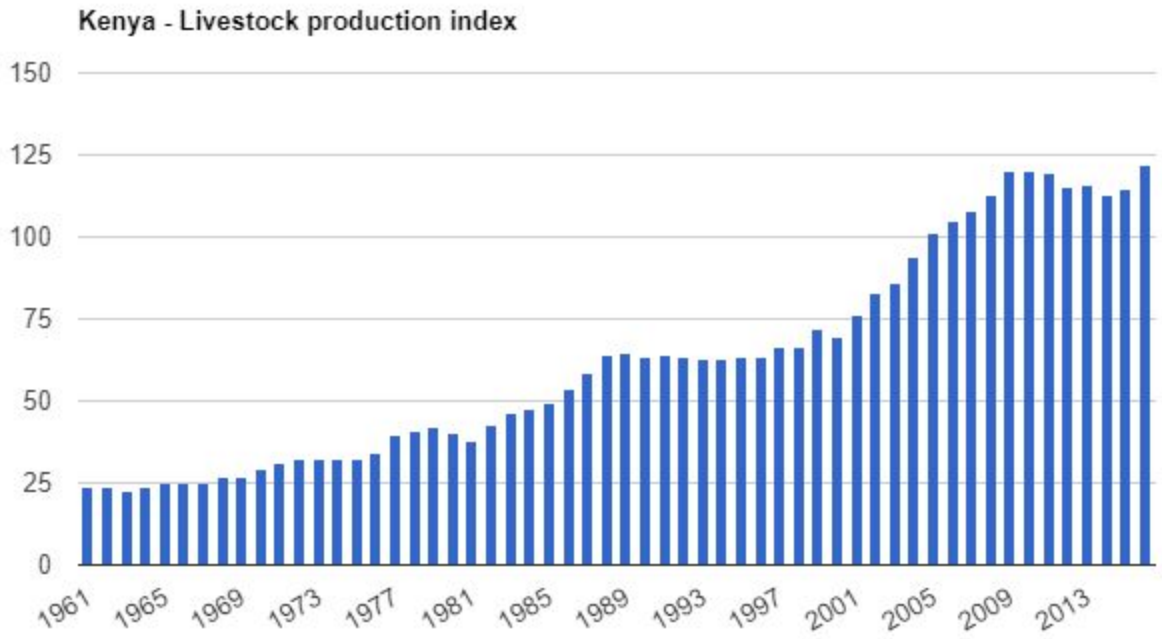
BACKGROUND

Agriculture is key to Kenya's economy. According to the Food and Agriculture Organisation, agriculture contributes to 26 per cent of the Gross Domestic Product (GDP) and another 27 per cent of GDP indirectly through linkages with other sectors. The Livestock sub-sector contributes about 10% in the national GDP, 50% in the agricultural GDP. The third major challenge that the agricultural sector faces, according to Kenya Agricultural Research Institute, is pests and diseases.


Kenya - GDP share of agriculture
40
35
30
25
20
1960
1964
1968
1972
1976
1980
1984
1988
1992
1996
2000
2004
2008
2012
2016


Kenya - Livestock production index
150
125
100
75
50
25
0
1961
1965
1969
1973
1977
1981
1985
1989
1993
1997
2001
2005
2009
2013

PROBLEMS

- Lack of access to veterinarians
- Misdiagnosis
- Late diagnosis and precautions taken

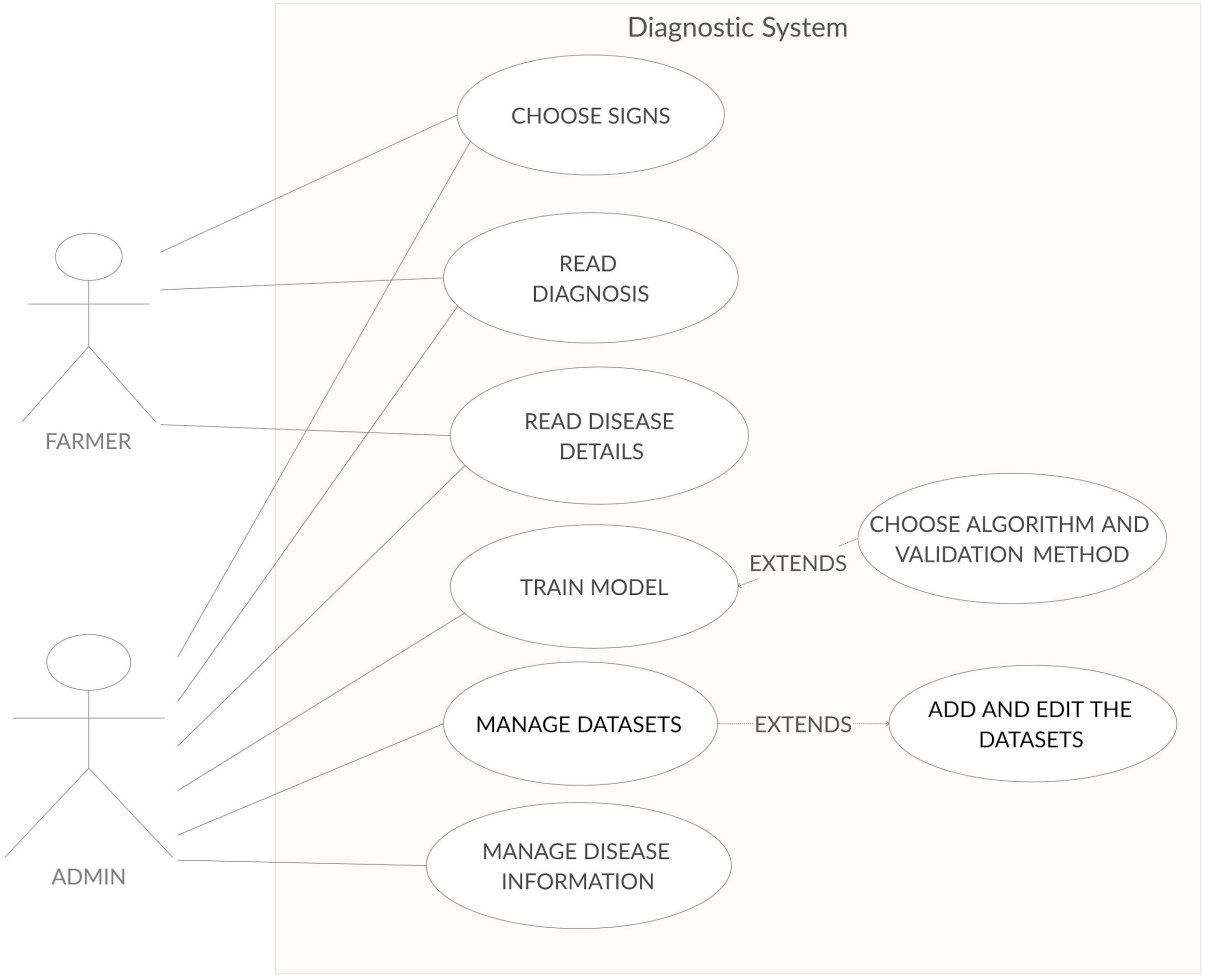
JUSTIFICATION

Early disease diagnosis is important in disease management. Currently, most farmers have troubles in getting quick consultation and diagnosis. With this system, an early diagnosis can be made by the farmer when they notice an animal is sickly. They then can act appropriately and enforce measures such as quarantine and isolation quickly before a veterinarian is available. They can also start changing the animals' lifestyle so as to not make the animals suffer. This reduces risk of outbreaks and death of animals. This system can also be used by veterinarians or community based animal workers as a reference in case they forgot or unsure of their diagnosis

OBJECTIVES

1. ANALYZE THE SYMPTOMS
2. PROVIDE DISEASE INFORMATION
3. CLASSIFY A PARTICULAR SYMPTOM

USE CASE


Diagnostic System
CHOOSE SIGNS
READ DIAGNOSIS
READ DISEASE DETAILS
TRAIN MODEL
EXTENDS
CHOOSE ALGORITHM AND VALIDATION METHOD
MANAGE DATASETS
EXTENDS
ADD AND EDIT THE DATASETS
MANAGE DISEASE INFORMATION
FARMER
ADMIN

MODELS USED

For diagnosis: Random Forest is used

For the individual symptoms: Convolutional Neural Network is used