



Livestock Disease Prediction System

Daksh Ashar¹, Amit Kanojia², Rahul Parihar³, Prof. Saniket Kudoo⁴
(Computer Engineering, VIVA Institute of Technology, India)

Abstract : Livestock are farm animals who are raised to generate profit. They are used for the commodities such as meat, eggs, milk, fur, leather and wool. Livestock animals usually distribute in remote areas, with relatively poor condition of disease diagnosis. Generally, it is difficult to carry out disease diagnosis rapidly and accurately. Livestock diseases often pose a risk to public health and even affects the economy at large extent as we are quite dependent on the essential commodities we procure from the livestock. It is necessary to detect the disease outcome in the livestock to take the precautionary measures in order to avoid spread amongst them. So, there is a need for a system which can help in predicting the diseases among livestock on the basis of symptoms and suggest the precautionary measures to be taken with respect to the disease predicted. Our proposed system will predict the livestock (Cow, Sheep and Goat) disease using SVC (Support Vector Classifier) multi-class classification algorithm based on the symptoms and also provide the precautionary measures on the basis of disease predicted. There are some diseases which can prove to be fatal. So, our system will also alert the livestock owner if the predicted disease may cause a sudden death.

Keywords - Cow, Disease Prediction, Goat, Livestock, Machine Learning, Precautionary Measures, Sheep, SVC.

I. INTRODUCTION

The livestock sector plays an important role in the socio-economic development of rural households. A large number of people in India being less literate and unskilled depend upon agriculture for their livelihoods. Livestock is a source of subsidiary income for many families in India especially the resource poor who maintain few heads of animals. One of the major obstacles in achieving the targeted growth rates in the sector is the prevalence and outbreaks of diseases. This livestock disease is the great threat to the animal health as well as to human those are in direct contact with animals and who consumes the product of the animal who has been infected by certain disease.

Livestock animals usually distribute in remote areas with relatively poor condition of diseases diagnosis rapidly and accurately. It is necessary to detect the disease outcome in the livestock to take the precautionary measures in order to avoid spread amongst them. There is a need for a system that helps to create awareness among livestock owners about the disease prevailing in the animal and taking the necessary precautions and also making the owner aware that disease can be the reason for death of animals.

In the existing system, the disease outbreak among the animals is predicted based on certain condition and it is also concerned to a specific animal and disease. Animal owners are often unaware of whether the disease is mild or might prove fatal and precautions to be taken at appropriate time. Our proposed system will predict the livestock (Cow, Sheep and Goat) disease based on the symptoms and also provide the precautionary measures on the basis of disease predicted. It will also alert the livestock owner if the predicted disease may cause a sudden death.

II. RELATED WORK

Ayesha Taranum, et. al. [1], proposed the method which analyses the disease by symptoms and also verify the scan image for determining the diseases in canine. It helps the pet Owners to diagnosis the disease, which minimizes the risk and in minor cases there is no need to contact veterinary. Varun Garg, et. al. [2], provides a methodology that how the use of machine learning can detect cattle diseases which can provide economical and medical solution to place with scarce in medical facilities for farm animals. The system provides early detection of the disease which can prevent delays in identifying heinous diseases. System further performs an intelligent

analysis from the sensor data of a hardware device and detect whether the cattle is suffering from a disease or not. Long Wan, Wenxing Bao, [3], proposed a paper that proved the practicality of support vector machine (SVM) used in the animal disease diagnoses expert system in theory by studying the disease diagnosis expert system based on SVM. They have designed the model of animal disease diagnoses expert system which was used to diagnose the cow diseases. It shows that the method is practical and effective. And this practice provides a new approach for animal disease diagnosis.

Lijing Niu, Chenhao Yang, et. al. [4], proposed the method which analyses the data of a large number of electronic medical records, and use the SVM algorithm in machine learning to classify texts. Then use the data mining association algorithm to correlate the disease of the cattle according to the symptoms of the cattle, and give corresponding diagnosis and treatment suggestions in time. K. P. Suresh, et. al. [5], provides a method that is based on the environmental parameters of the particular area, early recognition of a serious or exotic animal disease can be done which is one of the most important factors influencing the chance of controlling the disease. As many diseases are linked to environmental deterioration and stress associated with farm intensification.

III. METHODOLOGY

The objective of the project is to classify the disease on the basis of the input selected by the user. Also provide the precautionary measures of the disease predicted and alert the livestock owner in case if the predicted disease may cause a sudden death. The outcome is to create awareness of the disease that can cause sudden death any time in future. Providing precautionary measure helps to rehabilitate animal from diseases and also help to stop the spread of the disease to other animals or people taking care of animals by making the user aware of respective disease.

Livestock disease prediction system is used to predict multiple diseases. In order to predict multiple diseases or different types of disease we require a multi class classification algorithm. Therefore, we have used the SVM algorithm to prepare the model. Data is collected from various data sources and placed in a single excel file. It contains multiple set of the symptoms depending on the animal i.e., Cow, Sheep, Goat. Each dataset contains large number of instances. Different Model is prepared for each animal by training with appropriate dataset. Once the user selects the animal the model for that animal will be loaded and the application will show the list of symptoms. User selects the symptoms he had observed in the animal and submits the data. Then the data from the frontend is passed to the trained model for prediction. The model then predicts the disease and also provides the precautionary measures. In case if the disease is dangerous it will also alert the user. The user also has the option to access the web page in Hindi or English language.

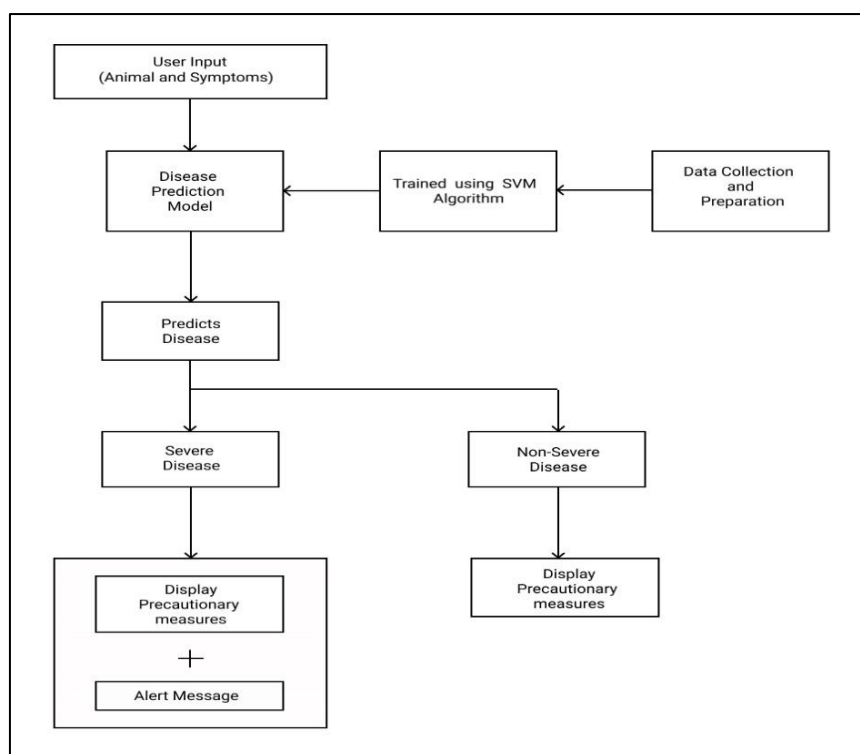


Figure 1: Block Diagram

Fig. 1 depicts the block diagram of the proposed system. The system takes the input of livestock and their symptoms and passes it to the disease prediction model. Model is trained using multiclass classification algorithm. It predicts the disease based on the symptoms selected by the user and also suggest precautionary measures along with the alert for severe diseases.

IV. CONCLUSION

The multiclass classification algorithm is used to predict the disease among livestock. The dataset contains the various symptoms and the name of the diseases based on the symptoms. The proposed system will be helpful for the livestock owners to identify the diseases among livestock based on the symptoms observed by them. They don't have to search for the precautionary measures to be taken as this system will provide it based on the disease predicted. The veterinarians are experts in a particular domain (for e.g., skin disease specialist), so it will be difficult for them to diagnose the disease of different domain. This system will be helpful to predict every type of diseases and human errors are also reduced to great extent as the system makes decision by learning through training using large dataset. Also, the time taken to predict the diseases is comparatively less and the system is user friendly.

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