



# JSPM's RAJARSHI SHAHU COLLEGE OF ENGINEERING

## DEPARTMENT OF COMPUTER ENGINEERING

**“Topic Name”:- “DeepGoat: Harnessing Deep Learning for Disease Prediction in Goats”**

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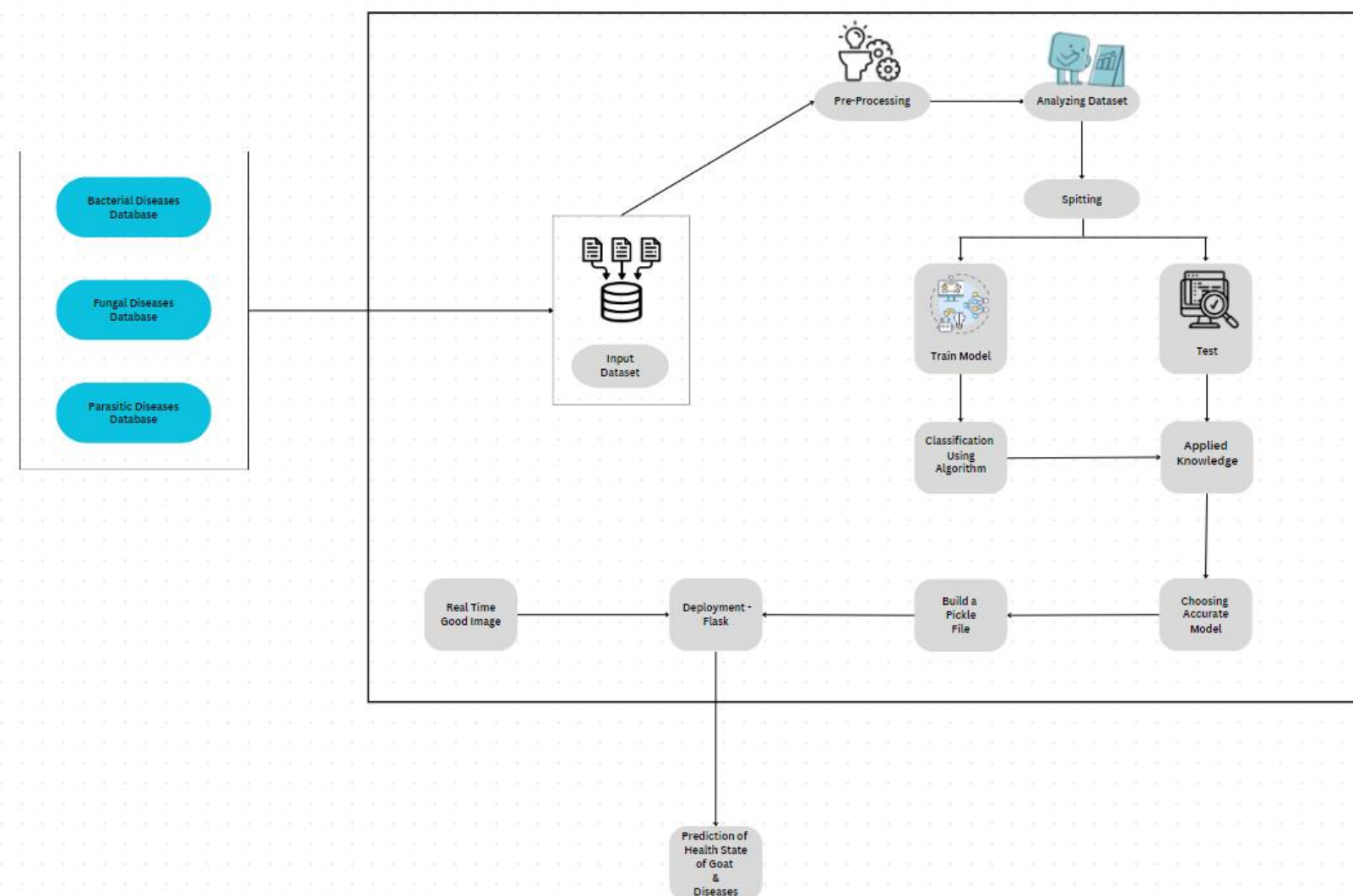
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**Introduction:** Maintaining the health of livestock is crucial for both commercial viability and sustainable agriculture, especially in goat farming. One of the most important aspects of cattle husbandry is the prompt identification and control of illnesses. However, manual inspection and laboratory testing which are labor-intensive, time-consuming, and occasionally subjective are frequently used in traditional techniques of diagnosing diseases in goats, which can cause delays in treatment and financial losses for farmers. The potential of deep learning algorithms for disease prediction in a variety of industries, including healthcare and agriculture, has drawn more attention in recent years. Artificial intelligence's deep learning subset has demonstrated impressive performance in applications like pattern recognition and picture analysis. Deep learning algorithms can recognize complicated patterns and characteristics from pictures and use vast datasets and sophisticated neural networks to produce precise predictions and classifications.

### System Architecture / Datasets / Related work :



System Architecture for Goat Diseases Prediction

### Methodology:

- Data Collection:-** We are going to integrate field surveys, veterinary records, and deep learning algorithms for our project, "DeepGoat: Harnessing Deep Learning for Disease Prediction in Goats," in order to create prediction models for the identification of goat diseases. In order to get firsthand information about goat health, we will tour goat farms located all across Pune. In addition to gathering photos for analysis and interviewing farmers using established questionnaires, our team will be monitoring physical symptoms. To obtain past veterinary data of goat illnesses, we will work with veterinarian clinics and animal health authorities. These documents will shed light on the geographic distribution, treatment outcomes, and prevalence of diseases. A dataset of roughly 4,000 to 5,000 photos illustrating different health ailments and symptoms seen in goats has been gathered by us. These pictures will be an important source of training data for our deep learning model.
- Pre-processing:-** Preprocessing procedures are applied to the gathered pictures in order to improve model resilience and standardize the data. In order to maintain consistency and variety within the dataset, this involves using augmentation, normalization, and resizing approaches. In order to facilitate supervised learning, annotations are applied to each image to identify the appropriate medical state.
- Training Model:-** To train and assess the performance of the model, the annotated dataset is divided into training, validation, and testing sets. Through gradient descent optimization and back propagation, the model gains the ability to correlate particular illness categories with picture attributes during training. Regularization strategies and hyperparameter adjustment are used to maximize model performance and avoid overfitting.
- Assessment:-** The "DeepGoat" project's performance in disease prediction tasks can be assessed using evaluation measures like precision, recall, and F1 score. Precision measures the model's accuracy in identifying sick goats, recall measures the percentage of accurate positive predictions among all real positive events, and F1 score balances the two measures by including false positives and false negatives. This helps identify areas for improvement and future research directions.
- Deployment-Flask:-** Flask, a lightweight Python web framework, was used to deploy deep learning models for goat disease prediction. The model preprocesses user input, including goat images, and returns predictions. A user-friendly interface was developed, allowing users to upload images for health issues forecasts.
- Real Time Prediction:-** Using deep learning, it is possible to anticipate goat illnesses in real time by classifying incoming photos instantaneously using a trained model. As part of the process, the model is integrated into an image capture and processing system, the pictures are preprocessed, inference is carried out, predictions are shown, and scalability, efficiency, and compliance are guaranteed. With the help of this technology, farmers and veterinarians can diagnose and treat diseases in goats more quickly and accurately, improving their health and production in the process.

**Conclusion:** "DeepGoat: Harnessing Deep Learning for Disease Prediction in Goats" concludes by providing a novel approach to prompt and precise disease diagnostics in goat husbandry. Through the use of deep learning algorithms, we have created a prediction model that can recognize common illnesses from images. With the ability to make proactive treatments possible and encourage sustainable agricultural methods, this technology has the potential to completely transform the management of animal health. To further increase animal welfare and boost production in goat farming, further research and cooperation are needed to refine and implement DeepGoat in practical agricultural environments.

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