SMART CROP PROTECTION FROM ANIMALS USING IOT AND DEEP LEARNING

.[1]K.Pushpavalli , K.Arun Prasad[2]
1. Assistant professor 2.Associate professor
Department of Information Technology
Agni College of Technology,Chennai.

ABSTRACT:

Crops in farms are many times ravaged by local animals like buffaloes, cows, goats, birds etc. This leads to huge losses for the farmers. It is not possible for farmers to barricade entire fields or stay on field 24 hours and guard it. We proposed a deep learning method for animal detection. As well as we detect moisture level, temperature level and humidity of farmer field.Efficient and reliable monitoring of wild animals in their natural habitat is essential where this project also develops an algorithm to detect the animals in wild life.Animal detection and classification can help to prevent farmer land damage, trace animals and prevent loss. Integrating IOT for live streaming in a video and SMS API for farmer alert when any animal is detected.We will also monitor temperature, humidity and moisture lively with the help of a webpage, and whenever the land becomes dry, automatically motor will be turn on and when it becomes normal, the motor will be switched off.Hence this project helps in saving the farmer land from animals as well as control the land moisture.

EXISTING SYSTEM:

The motion of wild animals are captured by using sensors before entering into human range and alerted using cloud periodic notification. A network based wireless sensor is used to detect forest fire to achieve high verdict accuracy for the early detection without serious outcome. Alarming system is imposed to warn and notify nearby people. Implements a sensor network, designed to track the location of the animals in sanctuaries and national park without hurting the animals.

PROPOSED SYSTEM:

We proposed a deep learning method and IOT for animal detection in farmer field. As well as we detect moisture level, temperature level and humidity of farmer field.Animal detection and classification can help to prevent crop damage. This can be achieved by applying effective deep learning algorithms.

We will be using efficient Alexnet algorithm to train the model for predicting the presence of animals. Applying optimization and loss minimization techniques to reduce the loss and provide an effective output.Inputting real time videos to predict the presence of animals in the farmer field.Integrating IOT for live streaming in a video and SMS API for farmer alert when any animal is detected.

During low moisture level, the motor will automatically be turned on and when it becomes high automatically motor will be turn off as well as it can be lively monitored.

Dataset collection module:

Dataset collection module is the process of collecting data that will be processed by the system for performing deep learning process.

There are three steps of collecting data,

- Manually finding and downloading images takes a long time simply due to the amount of human work involved.
- Since data has become such a valuable commodity in the deep learning era, much of the data can be found from third party resources.
- Starting with a network pre-trained on a large dataset, and then fine tune on our own.

Preprocessing data module:

In this paper the preprocessing data module is trained data module.

- In deep Learning module the quality of the training data determines the quality of your model.
- The data you will encounter in practice will be not clean in most cases. It means the data will contain non-uniform data formats, missing values, outliers, and features with very different ranges.
- The data would not be ready to be used as training data for your model.

For those reason, the data must be processed in various ways

SMS API Integration:

- A SMS API is well-defined software interface which enables code to send short messages via a SMS Gateway.
- As the infrastructures for SMS communications and the internet are mostly divided, SMS APIs are often used to 'bridge the gap' between telecommunications carrier networks and the wider web.
- SMS APIs are used to allow web applications to easily send and receive text messages through logic written for standard web frameworks.
- ❖ Easily integrate our SMS services with your website, software or CRM application in PHP, ASP, .NET, Java or any other language.

Live Monitoring Module:

- Django is one of the framework which support to python and mainly used for sending automatic email to higher person.

- Django is a Python-based free and open-source web framework, which follows the model-template-view (MTV) architectural pattern.

- It is maintained by the Django Software Foundation (DSF), an independent organization established as a non-profit.

- Django's primary goal is to ease the creation of complex, database-driven websites.

- The framework emphasizes reusability and "pluggability" of components, less code, low coupling, rapid development, and the principle of don't repeat yourself.

- Django also provides an optional administrative create, read, update and delete interface that is generated dynamically through introspection and configured via admin models.

CONCLUSION:

This paper is used to animal detection and classification which can help to prevent crop damage. By this process we can avoid crop damage and can also maintain the healthy crop and it also improve the crop protection. Thus this project helps in monitoring the animals in natural habitat which is essential and give more protection to crop effectively.

FUTURE WORK:

In the coming future, we review the application of the crop protection monitoring technology in the farmer field and it can promote for high level crop protection monitoring technology with more features. In this field they have more chance to develop or convert this project in many ways. This will provide healthy environment for our people and it can save farmers from great loss.

REFERENCES:

[1] Miguel Caixinha,Joao Amaro,Mario Santos,"In-vivo Automatic Nuclear Cataract Detection and Classification in an Animal Model by Ultrasounds",IEEE transactions on Biomedical Engineering,2016.

[2] Dina Masri,Zeyar Aung,Wei Lee Woon,"Image Classification Using Appearance Based Features", 11th International Conference on Innovations in Information Technology,2015.

[3] Hayder Yousif, Jianhe Yuan, "Fast Human- Animal Detection from Highly cluttered camera-trap Images Using Joint Background Modelling and Deep Learning Classification",2016

[4] Wilson, "Electric Fence" Handbook of Texas,Project report published by the Texas State Historical Association. August 4, 2011

[5] T. Mhammad, "Using Ultrasonic And Infrared Sensors For Distance Measurement" World Academy of Science, Engineering and Technology, pp. 293-298,2009.