

LITERATURE SURVEY

IoT Based Smart Crop Protection System for Agriculture

1. Analysis of Three IoT-Based Wireless Sensors for Environmental Monitoring

About:

Due to current advancements in the field of technology, there are serious concerns regarding pollution and climate change. Also now the majority of applications are dependent on WSN which are not as secure as compared to wired networks and communication speed is comparatively low. So there is a need for integrating this wireless sensor network node with Three Internet of Things based wireless protocols like UDP based Wi-fi communication, Wi-fi through HTTP and Bluetooth Smart. They provide reliable and secure low power wireless operations for non critical monitoring of temperature as well as control applications. By evaluating the three developed systems it is observed that UDP leads to large packet loss and by using HTTP requests the transmission success ratio is increased. Bluetooth eliminates the packet loss through a fixed gateway.

Limitations:

- The information present in the paper is only a starting point for selection of implementation using IoT based environmental applications and further research needs to be done.
- There is not a central gateway for UDP and HTTP protocols which may leads to loss of packets and inefficient transmission rate.

2.A Survey on the Role of IoT in Agriculture for the Implementation of Smart Farming

About:

In spite of large scale mechanisation of agriculture, in some parts of the country all the operations are carried out by human beings. Also due to indefinite climate patterns farmers are struggling to predict which crop to be sowed and many of the agricultural labourers are unaware of current technologies like smart farming, intelligent agriculture, crop climate prediction using CNN's etc.. This paper presents a brief survey about the work done regarding Iot technology in agriculture to develop smart solutions. It presents a rigorous

discussion on network architecture and layers, network topologies, protocols and use of other services for IoT based farming. Also security issues are developed for the aid of farmers. Finally the policies made by standard countries regarding smart farming are also given.

Limitations:

- This is a comprehensive survey in which it is a useful piece for researchers, professionals and agriculturalists, Neither a working solution or implementation model has been proposed.
- The survey does not have an endpoint which means it has to be further done, refined and constantly updated.

3.The Smart Image Recognition Mechanism for Crop Harvesting System in Intelligent Agriculture

About:

There is a huge competition between farmers and markets which has led to demands for higher product quality. Currently less than 2% of the population is engaged in agriculture which supplies food for the remaining 98% of the population. Here machines that were installed use low-cost microprocessors which are embedded in hardware for capturing images in the work area which can employ network models that have been pre trained using deep learning methods and they are installed in the server machines in order to improve the accuracy and speed of image recognition. It gives a new generation of young people the ability to quickly take over work in the agricultural industry. AlexNet which is a CNN based on LeNet with some additions is used for amplifying training data, using Rectified Linear Units (ReLUs) thereby increasing computational speed by employing graphics processing units. Object detection is performed using the MobileNet SSD model constructed using TensorFlow, and system tolerance is attained by adjusting training images and training different numbers of images in batches to test the model network's detection accuracy.

Limitations:

- Here the tensor flow mechanism which is used requires fundamental knowledge of advanced calculus and linear algebra along with a good understanding of machine learning which is highly difficult for normal farmers

4.Smart Agriculture Using IOT

About:

One of the important applications of Internet of Things is Smart agriculture. Smart agriculture reduces wastage of water, fertilizers and increases the crop yield. In the current agriculture system the specification such as temperature, moisture, humidity are detected manually which increases the labor cost, time and also monitoring cannot be done continuously. In this paper irrigation process is done automatically using different sensors which reduces the manual labor. Here a system is proposed to monitor crop-field using sensors for soil moisture, humidity and temperature. By monitoring all these parameters the irrigation can be automated.

Limitations:

- Implementation of Foggers
- Implementation of sliders.
- Implementation of roof sheets.
- Implementation of controllable water motor.
- Detection of gases/minerals above/under the ground & detection of insect

5.Smart Crop Protection System from Animals and Fire using Arduino

About:

Crops in farms are many times ravaged by local animals like buffaloes, cows, goats, birds, and fire 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. So here we propose automatic crop protection system from animals and fire. This is a arduino Uno based system using microcontroller. This system uses a motion sensor to detect wild animals approaching near the field and smoke sensor to detect the fire. In such a case the sensor signals the microcontroller to take action. The microcontroller now sounds an alarm to woo the animals away from the field as well as sends SMS to the farmer and makes call, so that farmer may know about the issue and come to the spot in case the animals don't turn away by the alarm. If there is a smoke, it immediately turns ON the motor. This ensures complete safety of crops from animals and from fire thus protecting the farmer's loss.

Limitations:

- There will be very large scope, this project can be made based on Image processing in which wild animal and fire can be detected by cameras and if it comes towards farm then system will be directly activated through wireless networks.
- Wild animals can also be detected by using wireless networks such as laser wireless sensors and by sensing this laser or sensor's security system will be activated.

6.Smart Agriculture Monitoring and Control System Using IOT**About:**

India is agriculture sector, on either side, is losing ground every day, affecting the ecosystem's output capacity. In order to restore vitality and put agriculture back on a path of higher growth, there is a growing need to resolve the issue. A large-scale agricultural system necessitates a great deal of upkeep, knowledge, and oversight. The IoT is a network of interconnected devices that can transmit and receive data over the internet and carry out tasks without human involvement. Agriculture provides a wealth of data analysis parameters, resulting in increased crop yields. The use of IoT devices in smart farming aids in the modernization of information and communication. For better crop growth moisture, mineral, light and other factors can be assumed. This research looks into a few of these characteristics for data analysis with the goal of assisting users in making better agricultural decisions using IoT. The technique is intended to help farmers increase their agricultural output.