LITERATURE SURVEY

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

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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.

Drawbacks:

- 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 lead to loss of packets and inefficient transmission rate.

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

Proposed work:

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.

Drawbacks:

- 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

Proposed work:

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.

Drawbacks:

- 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. IoT and agriculture data analysis for smart farm

Proposed work:

In recent years, the Internet of Things (IoTs) has begun to play a major role in daily lives, extending our perceptions and ability to modify the environment around us. Particularly the agro-industrial and environmental fields apply IoTs in both diagnostics and control. Also the applications of WSN in precision agriculture assists the farmers in a statistical manner, helping them make better and well informed decisions. The main aim is to design and implement systems with sensors in the crop field and data management by using a smartphone with a web application. The three components are hardware, web application, and mobile application which are installed in three villages located apart from each other and have differences in farming. The mobile application has two modes, such that farmers can control watering manually, or the proposed system can automatically turn on/off watering based on IoTs information gathered by sensors. Then Data mining was applied to extract important and useful knowledge from large data on crops, obtained with IoTs. The work demands a smartphone with an internet facility for tracking the application data which is very difficult for remote areas.

5. Smart Irrigation and Crop Yield Prediction Using Wireless Sensor Networks and Machine Learning

Proposed work:

This paper mainly emphasizes that to predict the yield of crops using different methods and different sensors. Yield forecast is an important phenomenon which is affected by agro-climatic information parameters such as soil fertility, temperature, humidity, use of fertilizers and chemicals. Those parameters are monitored and analysed by different sensors using either hardware or software methods. The sensor senses those values and sends the data to either desktop or laptop and predicts the result by the data given by the sensors. Based on that farmers will predict which crop will give higher profit and that crop will be planted. Early prediction of Crop yield helps the farmers to know his exact outcome of the year. Here the existing work will be analysed ,compared and implemented successfully.

Inference done:

S.No	Idea proposed	Inference
[1]	The wireless sensor network nodes are integrated with Three Internet of Things based wireless protocols like UDP based Wi-fi communication, Wi-fi through HTTP and Bluetooth Smart**.**	It is observed that UDP leads to a large number of packet loss and by using HTTP requests the transmission success ratio is increased.
[2]	It presents a rigorous discussion on network architecture and layers, network topologies, protocols and use of other services for IoT based farming.	It is a comprehensive report which serves as a useful piece for researchers, professionals and agriculturalists, future developers etc..
[3]	The three components used are hardware, web application, and mobile application in which mobile application has two modes, such that farmers can control watering manually, or the proposed system can automatically turn on/off watering based on IoT sensors.	The developed system was tested for real time enhancement and the probability of success ratio was good enough.
[4]	A dynamic real time system is implemented for automatic climate monitoring using IoT and embedded systems.	The system is less expensive with low power consumption and minimal effort response
[5]	It mainly focuses on the problem of maintenance, control of pesticides and insecticides , water management and crop monitoring.	Farmers can realise which crops to grow according to the market.