PAPER TITLE: A Smart Farming and “Crop Monitoring Technology” in Agriculture Using IOT

AUTHORS: Raj Aryan1 , Ankur Mishra2 , Sachin Kumar3 , Ms. Sonia Kumari4

ABSTRACT: A Smart Farming and “Crop Monitoring Technology” Using IOT in Agriculture. Agriculture is basic source of livelihood People in India. It plays major role in economy of country. But now a days due to migration of people from rural to urban there is hindrance in agriculture. Monitoring the environmental factor is not the complete solution to increase the yield of crops. There are no of factors that decrease the productivity to a great extent. Hence Automation must be implemented in agriculture to overcome these problems. An automatic irrigation system thereby saving time, money and power of farmer. The Traditional Farm land irrigation techniques require manual intervention. With the automated technology of irrigation the human intervention can be minimized. Continuous sensing an monitoring of crops by convergence of sensors with Internet of things (IOT) and making farmers to aware about crops growth, harvest time periodically and in turn making high productivity of crops and also ensuring correct delivery

of products to end, consumers at right place and right time. So to overcome this problem we go for smart agriculture technique using IOT. This Project includes sensors such as temperature, humidity, soil moisture and rain detector for collection the field data and processed. These sensors are combined with well established web technology in the form of wireless sensor network to remotely control and monitor data from the sensors.

CONS/DISADVANTAGES:

As the Internet of things facilitates a set of benefits, it also creates a significant set of challenges. Some of the IoT challenges are given below:

- **Security:** As the IOT systems are interconnected and communicate over networks. The system offers little control despite any security measures, and it can be lead the various kinds of network attacks.
- **Privacy:** Even without the active participation on the user, the IOT system provides substantial personal data in maximum detail.
- **Complexity:** The designing, developing, and maintaining and enabling the large technology to IOT system is quite complicated.

- **PAPER TITLE:** Development of IOT based Smart Security and Monitoring Devices for Agriculture.
- **AUTHORS:** Tanmay Baranwal,Nitika,Parmendra Kumar Pateriya

ABSTRACT: Agriculture sector being the backbone of the Indian economy deserves security. Security not in terms of resources only but also agricultural products needs security and protection at very initial stage, like protection from attacks of rodents or insects, in fields or grain stores. Such challenges should also be taken into consideration. Security systems which are being used now a days are not smart enough to provide real time notification after sensing the problem. The integration of traditional methodology with latest technologies as Internet of Things and Wireless Sensor Networks can lead to agricultural modernization. Keeping this scenario in our mind we have designed, tested and analyzed an 'Internet of Things' based device which is capable of analyzing the sensed information and then transmitting it to the user. This device can be controlled and monitored from remote location and it can be implemented in agricultural fields, grain stores and cold stores for security purpose. This paper is oriented to accentuate the methods to solve such problems like identification

of rodents, threats to crops and delivering real time notification based on information analysis and processing without human intervention. In this device, mentioned sensors and electronic devices are integrated using Python scripts. Based on attempted test cases, we were able to achieve success in 84.8% test cases.

CONS/DISADVANTAGES:

- It costs a lot of money to make or buy robots.
- They need maintenance to keep them running.
- The farmers can lose their jobs.
- The robots can change the culture / the emotional appeal of agriculture.
- Energy cost and maintenance.
- The high cost of research and development.
- Lack of access to poor farmers.

PAPER TITLE: REVIEW PAPER ON SMART CROP PROTECTION SYSTEM.

AUTHORS: Krunal Mahajan1, Riya Parate2, Ekta Zade3, Shubham Khante4, Shishir Bagal5

ABSTRACT: This paper describes overview of various researches on smart crop protection system. We have a lot of technology that can protect the farm 24x7 those systems and technique we are discussing in this paper. We have different types of technology that can help to secure the farm. We have seen Arduino and raspberry pi based Farm protection system. But those Systems have different mythology and platform for that and the cost of those projects also increased so that those are not affordable with the farmer. Our main aim to design a system that can help to farmer to protect his farm from, animals with getting harm to them.

CONS/DISADVANTAGES:

➨The smart agriculture needs availability of internet continuously. Rural part of most of the developing countries do not fulfil this requirement. Moreover internet connection is slower.

➨The smart farming based equipments require farmers to understand and learn the use of technology. This is

major challange in adopting smart agriculture farming at large scale across the countries.

PAPER TITLE: IoT Based Automated Crop Protection System.

AUTHORS: Gogul Dev N S, Sreenesh K S, Binu P K

ABSTARCT: Low productivity of crops is one of the main problems faced by the farmers in our country. This can be because of two main reasons. Crops destroyed by wild animals and because of bad weather condition. This paper provides a solution to the destruction of crops by animals. This system will provide a complete technical solution using the Internet of things (IOT) to the farmers to prevent their crops from wild animals and provide information to the farmers to maximize their production. Animals are detected using PIR sensors and cameras where animals are identified using Tensor Flow image processing Techniques. Raspberry Pi is used as the processing unit of the system and sound buzzers are used to emit the ultrasound frequencies.

CONS/DISADVANTAGES:

- They need maintenance to keep them running.
- The farmers can lose their jobs.
- The robots can change the culture / the emotional appeal of agriculture.
- Energy cost and maintenance.
- The high cost of research and development.

- Lack of access to poor farmers.

PAPER TITLE: IOT Based Crop Protection System against Birds and Wild Animal Attacks.

AUTHORS: P.Navaneetha1 , R.Ramiya Devi2 , S.Vennila3 , P.Manikandan4 , Dr.S.Saravanan5

ABSTARCT: The main aim of our project is to protect the crops from damage caused by animal as well as divert the animal without any harm. 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. So here we propose automatic crop protection system from animals. Animal detection system is designed to detect the presence of animal and offer a warning. In this project we used PIR and ultrasonic sensors to detect the movement of the animal and send signal to the controller. It diverts the animal by producing sound and signal further, this signal is transmitted to GSM and which gives an alert to farmers and forest department immediately.

CONS/DISADVANTAGES:

1. System gets damage due to heavy rain and storms.
2. Network issues in remote areas.

3. Animals may cause damage to system.

PAPER TITLE: IOT BASED MONITORING SYSTEM IN SMART AGRICULTURE.

AUTHORS:

Prathibha S R1 ,Anupama Hongal 2 ,Jyothi M P3

ABSTARCT:

Internet of Things (IOT) plays a crucial role in smart agriculture. Smart farming is an emerging concept, because IOT sensors capable of providing information about their agriculture fields. The paper aims making use of evolving technology i.e. IOT and smart agriculture using automation. Monitoring environmental factors is the major factor to improve the yield of the efficient crops. The feature of this paper includes monitoring temperature and humidity in agricultural field through sensors using CC3200 single chip. Camera is interfaced with CC3200 to capture images and send that pictures through MMS to farmers mobile using Wi-Fi.

CONS/DISADVANTAGES:

1.The smart agriculture needs availability of internet continuously.

2. Rural part of most of the developing countries do not fulfil this requirement.

3.Moreover internet connection is slower.

PAPER TITLE: IoT based Smart Agriculture.

AUTHORS:

Nikesh Gondchawar1 , Prof. Dr. R. S. Kawitkar2

ABSTRACT:

Agriculture plays vital role in the development of agricultural country. In India about 70% of population depends upon farming and one third of the nation's capital comes from farming. Issues concerning agriculture have been always hindering the development of the country. The only solution to this problem is smart agriculture by modernizing the current traditional methods of agriculture. Hence the project aims at making agriculture smart using automation and IoT technologies. The highlighting features of this project includes smart GPS based remote controlled robot to perform tasks like weeding, spraying, moisture sensing, bird and animal scaring, keeping vigilance, etc. Secondly it includes smart irrigation with smart control and intelligent decision making based on accurate real time field data. Thirdly, smart warehouse management which includes temperature maintenance, humidity maintenance and theft detection in the warehouse. Controlling of all these operations will be through any remote smart device or computer connected to Internet

and the operations will be performed by interfacing sensors, Wi-Fi or ZigBee modules, camera and actuators with micro-controller and raspberry pi.

CONS/DISADVANTAGES:

- IoT – smart farming continually requires internet connectivity. ...
- The IoT related equipment allows the farmer to understand the use of technology and to learn. ...
- Given any security measures, the system offers little power and can lead to various kinds of network attacks.

PAPER TITLE: Smart IoT Monitoring System for Agriculture with Predictive Analysis.

AUTHORS:

Alaa Adel Araby1 , Mai Mohamed Abd Elhameed1 , Nada Mohamed Magdy1 , Loa'a Ahmed Said1 , Nada Abdelaal1 , Yomna Tarek Abd Allah1 , M. Saeed Darweesh2,3, Mohamed Ali Fahim4 , Hassan Mostafa1,3

ABSTRACT:

The Internet of Things (IoT) technology has the means to shape the future of many industries. Data is the language of the communication between different nodes through the network; the networks are the communication channel. The cloud is the home and destination of the data which adds intelligence through data analytics software, Precision agriculture uses the IoT features to help in managing crops production, by optimizing the quality of the crops through applying required nutrients and reduce the harmful impacts on the environment due to the application of excess pesticides. In this paper, we deployed a sensing network to gather the field data of some crops (Potatoes, Tomatoes, etc.), then fed these data to a machine learning algorithm to get a warning message finally

displaying both the data and the warning message through a Graphical User Interface (GUI).

CONS/DISADVANTAGES:

- Poor living conditions and hygiene for livestock. ...
- Excessive use of agro-chemicals. ...
- Deforestation and alteration of the natural environment. ...
- Risks to human health. ...
- Higher risks of cancer and birth defects. ...
- The use of chemical hormones in food. ...
- Possibility of poor quality food products.

PAPER TITLE: A Low Power IoT Network for Smart Agriculture

AUTHORS:

Soumil Heble, Ajay Kumar, K.V.V Durga Prasad, Soumya Samirana, P.Rajalakshmi, U. B. Desai

ABSTRACT:

Traditional agriculture is transforming into smart agriculture due to the prominence of the Internet of Things (IoT). Low-cost and low-power are the key factors to make any IoT network useful and acceptable to the farmers. In this paper, we have proposed a low-power, low-cost IoT network for smart agriculture. For monitoring the soil moisture content, we have used an in-house developed sensor. In the proposed network, the IITH mote is used as a sink and sensor node which provides low-power communication. We have evaluated our network with state of the art networks, proposed for agriculture monitoring. Power and cost are the two metrics used for evaluation of these networks. Results show that the proposed network consumes less power and has on average 83% prolonged lifetime at a lower cost compared to previously proposed network in the agriculture field.

CONS/DISADVANTAGES:

1.The smart agriculture needs availability of internet continuously. Rural part of most of the developing countries do not fulfil this requirement. Moreover internet connection is slower.

2.The smart farming based equipments require farmers to understand and learn the use of technology. This is major challenge in adopting smart agriculture farming at large scale across the countries.

PAPER TITLE: Providing Smart Agricultural Solutions to Farmers for better yielding using IoT

AUTHORS: M.K.Gayatri Student, J.Jayasakthi , Dr.G.S.Anandha Mala

ABSTRACT:

The field of Cloud computing is helping in leaps and bounds to improvise our age old business - Agriculture. Practical applications can be built from the economic consumption of cloud computing devices that can create a whole computing ecosystem, from sensors to tools that observe data from agricultural field images and from human actors on the ground and accurately feed the data into repositories along with their location as GPS co-ordinates. In reality, sensors are now able to detect the position of water sources in a subject that is being investigated. Issues related to farmers are always hampering the course of our evolution. One of the answer to these types of problems is to help the farmers using modernization techniques. This paper proposes an approach combining the advantages of the major characteristics of emerging technologies such as Internet of Things(IoT) and Web Services inorder to construct an efficient approach to handle the enormous data involved in agrarian output.The approach uses the combination of IoT and cloud computing that promotes the fast development of agricultural modernization and

helps to realize smart solution for agriculture and efficiently solve the issues related to farmers.

CONS/DISADVANTAGES:

The IoT device is considered to be the main driver of transformation in the agricultural sector for years to come. IoT devices enable farm managers to track crops in real-time, with precise planting, livestock management, and smart greenhouse management, etc.

Unfortunately, there is too high a rate of worker turnover from the agricultural sector to other industries. Unlike other industries, IoT system devices installations and maintenance are a little troublesome and need lots of investment.