Literature Survey on "Smart Farmer - IOT Enabled Smart Farming Application"

1. IOT BASED MONITORING SYSTEM IN SMART AGRICULTURE

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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. Agriculture Organisations, the world wide food production should be increased by 70% in 2050 for evolving population. Agriculture is the basis for the human species as it is the main source of food and it plays important role in the growth of country's economy. It also gives large ample employment opportunities to the people. The farmers are still using traditional methods for agriculture, which results in low yielding of crops and fruits. So the crop yield can be improved by using automatic machineries. There is need to implement modern science and technology in the agriculture for increasing the yield. By using IoT, we can expect the increase in production with low cost by monitoring the efficiency of the soil, temperature and humidity monitoring, rain fall monitoring,
fertilizers efficiency, monitoring storage capacity of water tanks and also theft detection in agriculture areas. The combination of traditional methods with latest technologies as Internet of Things and Wireless Sensor Networks can lead to agricultural modernization. The Wireless Sensor Network which collects the data from different types of sensors and send it to the main server using wireless protocol. There are many other factors that affect the productivity to great extent. Factors include attack of insects and pests which can be controlled by spraying the proper insecticide and pesticides and also attack of wild animals and birds when the crop grows up. The crop yield is declining because of unpredictable monsoon rainfalls, water scarcity and improper water usage.

2. Smart Farming: IoT Based Smart Sensors Agriculture Stick for Live Temprature and Moisture Monitoring using Arduino, Cloud Computing & Solar Technology

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Internet of Things (IoT) technology has brought revolution to each and every field of common man's life by making everything smart and intelligent. IoT refers to a network of things which make a self-configuring network. The development of Intelligent Smart Farming IoT based devices is day by day turning the face of agriculture production by not only enhancing it but also making it cost-effective and reducing wastage. The aim / objective of this paper is to propose a Novel Smart IoT based Agriculture Stick assisting

farmers in getting Live Data (Temperature, Soil Moisture) for efficient environment monitoring which will enable them to do smart farming and increase their overall yield and quality of products. The Agriculture stick being proposed via this paper is integrated with Arduino Technology, Breadboard mixed with various sensors and live data feed can be obtained online from Thingsspeak.com. The product being proposed is tested on Live Agriculture Fields giving high accuracy over 98% in data feeds. One of main areas where IoT based research is going on and new products are launching on everyday basis to make the activities smarter and efficient towards better production is “Agriculture”. Agriculture sector is regarded as the more crucial sector globally for ensuring food security. Talking of India farmers, which are right now in huge trouble and are at disadvantageous position in terms of farm size, technology, trade, government policies, climate conditions etc. No doubt, ICT based techniques have solved some problems but are not well enough for efficient and assured production. Recently, ICT has migrated to IoT which is also known as “Ubiquitous computing” (Patil et al, 2012). Agricultural production requires lots of activities like soil and plant monitoring, environmental monitoring like moisture and temperature, transportation, supply chain management, infrastructure management, control systems man

3. Implementation of Smart Farming using IoT

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The paper entitled “Implementation of smart farming using IoT” will be used by farmers for monitoring water supply to the fields and also providing protection for the fields from animals. It uses Thing speak platform to find the soil moisture, find the entry of animals into the fields. The need for this project to reduce the work of farmers and increase the crop production. In the proposed system the greenhouse parameters like water level and humidity are monitored continuously and data is uploaded continuously to server system using IOT gateways technology. The purpose of Arduino Uno is that it connects all components associated with the development kit. Each I/O pin is associated with a particular component of the kit for performing particular function. The output of the sensors is monitored continuously so that the motor can be switched on/Off. The values of the sensors are continuously uploaded in the server system. As per the system working is concerned the farmer can switch ON the motor by sending a message through his mobile to the Arduino by using GSM module. Similarly, when animals try to enter the field a warning message is sent to the farmers mobile. Many of the farmers are facing a lot of problems while protecting fields during night times. Since protecting the field 24/7 is difficult for farmers. Watering the fields at regular intervals is necessary from increased crop production. Since farmers are very important for the food production it is important to reduce the work of the farmers. Precision Agriculture improves productivity increasing yields and profitability, reducing impact on environment. These days, Internet of Things is playing a crucial role of transforming Traditional Technology from homes to offices One of the main reasons where IoT based research is going on and new products are launching on everyday basis to make the activities smarter and efficient towards better production in “Agriculture”.

4. Smart Farming System using IoT for Efficient Crop Growth

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Smart agriculture is a farming system which uses IoT technology. This emerging system increases the quantity and quality of agricultural products. IoT devices provide information about nature of farming fields and then take action depending on the farmer input. In this paper, an IoT based advanced solution for monitoring the soil conditions and atmosphere for efficient crop growth is presented. The developed system is capable of monitoring temperature, humidity, soil moisture level using NodeMCU and several sensors connected to it. Also, a notification in the form of SMS will be sent to farmer's phone using Wi-Fi about environmental condition of the field.

Agriculture is the primary occupation in India and is the backbone of Indian economic system. Agriculture provides employment opportunities to rural people on a large scale in underdeveloped and developing countries in addition to providing food. It is the process of producing food, fiber and many other desired products by the cultivation and raising of domestic animals. Agriculture is the primary source of livelihood for about more than 58% of India's population. Climate changes will have significant impact on agriculture by increasing water demand and limiting crop productivity in areas where irrigation is most needed. Irrigation system, rain fed agriculture, groundwater irrigation is some of the methods introduced to produce healthier crops which may not use water efficiently. In order to use water efficiently a smart system is designed. In the system farmer need not make the water flow into fields manually, but the system automatically does that efficiently. The traditional methods practiced by people may result in huge wastage of water. Hence, the concept of robotized farming with mix of IoT has been developed. The technological advancements began to increase the efficiency of production remarkably thus, making it a reliable system. The knowledge of properties of soil determines the water supply to be driven in a smart way. The practice of agriculture in a smart way helps to acquire knowledge of soil and temperature conditions. Developing the smart agriculture using IoT based systems not only increases the production but also avoids wastage of water. The soil moisture sensor, humidity and temperature sensor continuously monitor the soil and environmental conditions, sends the live data to smartphone via cloud service.