LITERATURE SURVEY

[1].Smart farming system using data minig

Smart farming system is an autonomous & sophisticated mechanism, which will aid in the growth of agriculture yield by applying hi-tech agriculture techniques without human intervention. The paper represents an overview of a recent smart farming software solutions. The proposed system works on the data mining techniques & data obtained from satellite information, Internet, from soil testing report fed in the existing databases. It elegantly makes use of the clustering algorithms for taking decisions based on the awareness of weather changes, by keeping track of crop growing stages, with proper water utilization, along with the decision of fertilizer to be used according to crop stage, as well as the pesticide to be used to protect crops from diseases and insect attack.

Advantages:

1) System Objects- Knowledge about Soil, nutrients, Crop, Fertilizer's properties, crop related properties, etc.

2) Fertilizer Knowledge- Knowledge about last fertilizer used, fertilizer absorption rate etc.

3) Relat ionship between objects and knowledge.

4) Fertilizer knowledge representation and storage

Disadvantages

1) Water required for crop at particular Day/Stage.

2) Fertilizer to be used at particular stage according to the micro-nutrien (Nitrogen, Potassium, Phosphorous) as well as Macronutrients (Calcium, MagnesiumSulphur present in soil.

[2].Smart Farming Becomes Even Smarter With Deep Learning—A Bibliographical Analysis

Smart farming is a new concept that makes agriculture more efficient and effective by using advanced information technologies. The latest advancements in connectivity, automation, and artificial intelligence enable farmers better to monitor all procedures and apply precise treatments determined by machine swith super human accuracy.Farmers,data scientistsand,engineers continue to work on techniques that allow optimizing the human labor required in farming. With valuable information resources improving day by day, smart farming turns into a learning system and becomes even smarter. Deep learning is a type of machine learning method, using artificial neural network principles. The main feature by whichdeep learning networks are distinguished from neural networks is their depth .

Advantages:

1. In this apporach an algorithm scans the data to identify features which correlete and then combine them to promote faster learining.
2. Real time monitoring and predication systems framers can quickly respond .
3. To any significant change in weather,humidity,air quality the health of each crop or soil in the field.

Disadvantages:

1. Smart framing is that it requries an unlimited or continues internet connection to be successful
2. Given any security measures,the system offers little power and can lead to various kinds of network attacks

[3] .Unmanned aerial vehicales in agriculture a review of perspective of platforms control,and application

For agricultural applications, regularized smart-farming solutions are being considered, including the use of unmanned aerial vehicles (UAVs). The UAVs combine information and communication technologies, robots, artificial intelligence, big data, and the Internet of Things. The agricultural UAVs are highly capable, and their use has expanded across all areas of agriculture, including pesticide and fertilizer spraying, seed sowing, and growth assessment and mapping. Accordingly, the market for agricultural UAVs is expected to continue growing with the related technologies. In this study, we consider the latest trends and applications of leading technologies related to agricultural UAVs, control technologies, equipment, and development. We discuss the use of UAVs in real agricultural environments. Furthermore, the future development of the agricultural UAVs and their challenges are presented.

Advantages

1.AgriculturalUAVshave simplified crop spraying for farmers as can cover large expanse of land within a very short time interval.

2. Easily deployable.

3. Security**.**

Disadvantages

1.Assets and againsts

2.Gains and losses

3.Opportunities and obstacles.

[4]. An overview of smart irrigation software

Agriculture represents the biggest water user, with irrigation accounting for 70% of global water withdrawals. It is expected that, without improved efficiency, agricultural water consumption increases by about 20% by 2050 at global level. ICT technologies have been recognized as crucial in development of smart and sustainable agriculture. The paper represents an overview of some recent smart irrigation software solutions. The presented solutions exploit data obtained from different sensors, weather stations, satellite information, Internet or from the existing databases. Based on these data, the presented ICT solutions provide real-time decisions about the right irrigation time, prediction and plan for the irrigation in the future, as well as modeling of the irrigation scheduling and design of the irrigation systems based on offline data.

Advantages:

1. Helpful in low rainfall area.
2. Improves yield of crop.
3. One of the greatest advantages of a smart irrigation system is its ability to save water.

Disadvantages:

1.smart watering system is a bit expensive

2.depending on the size of your property, you will need more system.

3.Course saving on water bills will lead to less

[5]. Cloud computing and networking for smart farm agritech.

In this paper, the implementation of SmartFarm AgriTech is done using IoT and cloud computing. The current world population is 7.9 billion and supposed to reach 12 billion by 2050, and it is difficult to feed such population in the future. So, for feeding the entire population, the agriculture sector should be embedded with the latest technologies. People living in urban city will be covered with their work and day to day activities which makes it really difficult to travel the village and monitor their cultivation regularly. Without proper maintenance of farms, it is hard to get the desired results, so using the cloud computing, IOT, networking, and many other technologies, one can easily maintain and monitor the crops, weather, water, and spraying fertilizers whenever needed. This SmartFarm AgriTech System is designed using Raspberry Pi and Arduino as the main microcontrollers to control the various sensors, relay-switch, and motor. AWS and ThingSpeak are used to create server and APIs to collect and store the data through Internet or via a Local Area Network (LAN). In addition to that, a GUI (Graphical User Interface) application is also created to control and monitor the data coming from Raspberry Pi and Arduino board.

Advantage:

1. Backup and restore data
2. Improve collaboration
3. Excellent accessibility

Disadvantage:

1. Internet connectivity
2. Limited controll
3. security

[6]. Smart farming using IOT

The agriculture industry is developed a lot with the help of technology; it became data-centered and smarter. The rapid growth of the Internet of Things based technologies reshaped many industries, including agriculture. Such a radical change dismantles existing farming practices and creates new opportunities along with some challenges. The IoT systems contributed in many fields and proven. It is time for farmers need to introduce the Smart Agricultural systems for higher crop yield. With a compilation of data from sensors and modern electronic gadgets, the farmer can monitor agricultural fields. Smart Agriculture can forecast weather data, switching ON the pump motor and switch ON the bulb for artificial light due to less light intensity, for farms acknowledging the dampness of soil of moisture levels. The IR sensor detects the pest and humans by their temperature; the sensors are interfaced to process module Arduino-UNO. The Smart agriculture system can be operated from anywhere with the help of networking technology.

Advantages:

1. They are simple to use and easy to install.
2. They are cheaper .
3. They are euipped with wireless chip so that they can be remotely controlled.

Disadvantage:

1. They framers can lose their job.
2. Energy cost and maintance.
3. Lack of access to poor framers.

[7]. An IoT Based Smart Farming System UsingMachine Learning

Smart farming allows to analyze the growth of plants and to influence the parameters of our system in real time in order to optimize plant growth and support the farmer in his activity. Internet of Things (IoT) arrangements, based on the application particular sensors data measurements and intelligent processing, are bridging the holes between the cyber and physical worlds. In this paper, we propose the design and the experiment of a smart farming system based on an intelligent platform which enables prediction capabilities using artificial intelligence (AI) techniques. This system is based on the technology of wireless sensor networks and its implementation requires three main phases, data collection phase using sensors deployed in an agricultural field, data cleaning and storage phase, and predictive processing using some AI methods.

Advantages:

1.Improved fuel efficiency.

2.Smart farming allows farmers to be much more preicse.

3.As will as saving time,this also saves fuel.

Disadvantages:

1.It requries an unlimited or continous internet connection to be successful.

2.Iot-smart farming continually requires internet connectivity.

[8]. IOT BASED SMART FARMING

The major influencing parameter of Indian economy is Agriculture. Also in agriculture the most important factor is irrigation. Irrigation must be in proper time for a better crop yield. It is quite difficult for a farmers having a large scale field. So to overcome this problem we go for IOT based smart farming. Iot based smart farming is used to monitor and irrigate the field in proper time by anytime and being anywhere. This project includes the various features like soil moisture sensor, temperature sensor, humidity sensor for facilitate the irrigation in proper way. Various sensor nodes are deployed at different locations in the farm to automate the irrigation anytime anywhere. This project will be more helpful for the farmer's welfare.

Advantages:

1.It allows farmers to maximize yield using minimum resources such as water.

2.Increased agility of the processes.

3.smart agriculture use drones and robots which helps in many ways.

Disadvantages

1.The system offers little control despite any security measures.

2.Iot system provids substantial personal data in maximum detail

[9]. IoT Enabled Smart Farming and Irrigation System

IOT plays a major role in agricultural field. This paper is mainly applied to agricultural field. Smart irrigation and farming can help farmers to grow healthy plants. The existing system only checks the soil water stress and automates the process of watering. The paper is about IOT based smart farming and irrigation system. The ultimate agenda of this paper is to automate the process of watering to plants. This work helps us to know the values of various parameters such as humidity, moisture and temperature of plants and water them accordingly. The system consists of three sensors which sense the values of humidity, moisture and temperature of plants. If any of the values decreases the motor automatically turns on the water for plants. This is done using Arduino board, voltage regulator and relay which controls the motor. WIFI module is used to inform the user about the exact field condition. The various sensors send the values to the Arduino board which has been coded with if else conditions will further pass the commands to the relay which turns on or off the motor according to the conditions given

Advantages:

1.smart farming system reduce waste.

2.Improve productivity

3.Enable management of a greater number of resources.

Disadvantages:

1.technical complexity.

2.Integration.

3.Higher costs.

[10]. Internet of Things (IoT)
Application Model forSmart Farming

Smart Farming has brought a major transformation in the agriculture process by using the Internet of Things (IoT) devices, emerging technologies such as cloud computing, fog computing, and data analytics. It allows farmers to have real-time awareness of the farm and help them make smart and informed decisions. In this paper, we propose a distributed data flow (DDF) based model for the smart farming application that is composed of interdependent modules. We evaluate the proposed application model using two deployment strategies: cloud-based, and fog-based where the application modules are deployed on the fog and the cloud data center respectively. We compare the cloud-based and fog-based strategy in terms of end-to-end latency and network usage.

Advantages

1.Efficient operation management.

2.improved work safety.

3.Better business opportunities.

Disadvantages

1.Integration.

2.Higher costs

3.Connectivity and power dependence

Summary

1.Increased work efficiency.One of the greatest things about smart is its potential to save valuable time.

2.Reduced Wastage and cost management.

3.Accentuated product quality.

4.Improved productivity and enable management of a greater number of resources through remote sensing.

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