

A REVIEW OF DIFFERENT METHODS FOR IMPLEMENTING SMART AGRICULTURE ON AN IOT PLATFORM

¹V. Nitin Kumar, ²Dr. Ragini Shukla, ³Dr. Ravi Mishra

¹Research Scholar of Information Technology, Dr. C. V. Raman University, Bilaspur, India. ²Assistant Professor, Dr. C.V. Raman University Kargi road, Kota, Bilaspur, India. ³Associate Professor, GHRIET, Nagpur, India.

Abstract : Now a day's everything is feasible using Internet of things which relate everything present on this universe together using Internet of things .By using different sensors and massive data different information is collected which is considered to be useful. IOT platform is very beneficial for making any system smart and environment friendly. Adequate water management techniques are used to increase agriculture of any yield which needed proper water irrigation management. For the proper water management a wireless sensor networks system has to be used. Wireless sensor network gave us a reduced cost; better control, easy to use irrigation system for enhancement of agriculture introducing WSN in field has improved effectiveness and efficiency of farmer. This method can benefit to assess field parameter i.e. state of soil atmospheric condition (temperature, humidity, biomass of plants and animals, shocks during product transport. Advanced Irrigation system is in which water Irrigation system could be an approach of allowing water to sprinkle gently to the roots, either onto the soil outer layer or directly onto the foundation zone, through solenoid valve. The objective of our research is to frame an infrastructure which grants rapid development of multiple divergent of IOT application with minimum technical skill. Our research aims to present a software-centric agricultural representation and implementation of IOT.

Keywords : Internet of thing, Smart farm, Wireless sensor network, Irrigation system.

INTRODUCTION

In recent generation, everything is possible by using IoT which interconnects the entire thing present on this planet together with the assistance of internet. The IoT is used for collecting real time data and extremely useful information. The agriculture hub business is a core part of supply chain, daily changes and future development in the upcoming years by the utilisation of smart agriculture with the assistance of smart devices which is associated with the web . Web of Things (IoT) is tolerating an extraordinary thought on account of its potential quality and ability to be joined into any capricious structure. The IoT gives the picked up data from the earth to the Internet through the pro associations. This further urges customers to see the numerical or plotted data. Developing such a system for the IoT is an astoundingly baffling endeavour due to the distinctive variety of devices, interface layer advancements, and organizations. Envisioning metrological parameters effect crop improvement, headway and yields of agribusiness said that in decade deficiency water system methodologies enabled cultivators to manage water deficiencies, while observing stem water potential (framework) is considered fundamental for amplifying natural product yield and quality. Be that as it may, in view of the serious work engaged with estimating framework, elective strategies are attractive.

A – Internet of Things

Web of Things can associate gadgets implanted in different frameworks to the web. At the point when gadgets questioned can speak to themselves carefully they can be controlled from anyplace. The network from any place. The network them encourages us catch more information from more places, resulting more methods for expanding proficiency.

B – Smart Agriculture:

In some of the year the research base in smart agriculture to the rancher can get to the server about the field condition whenever, anyplace it diminishing the labour and time.

Smart farming is a multi-dimensional mix of various distinctive innovative executions. These applications are supplanting wasteful, conflicting and questionable customary confining procedures with productive, solid and economical smart agriculture.

- Smart framing using web based application monitoring.
- Monitoring any where any time though cloud computing.
- Reducing time and productivity increase.
- Collect data through real time sensor.
- Analyze data using micro control
- Adaptive water control, numerical optimization real time suggestions.
- Rural sensor data: temperature, moistness, pressure, gas focuses and indispensable signs, and so forth.

Use of IoT in agriculture it will be beneficial not for a single farmer but also might have the option to convey the yields straight forwardly to the rancher not just in little locale like in direct basic leadership in a more extensive zone. There is some point of the traditional vs modern agriculture.

A - Traditional farming

1. It includes old instrument.
2. They use bio fertilizers.
3. It don't have any type hybrid variety of seeds.
4. They do not produce high productions.

B- Modern farming

1. It includes machines and new instruments.
2. They use chemical pesticides.
3. It have hybrid variety seeds.
4. They produce high productions.

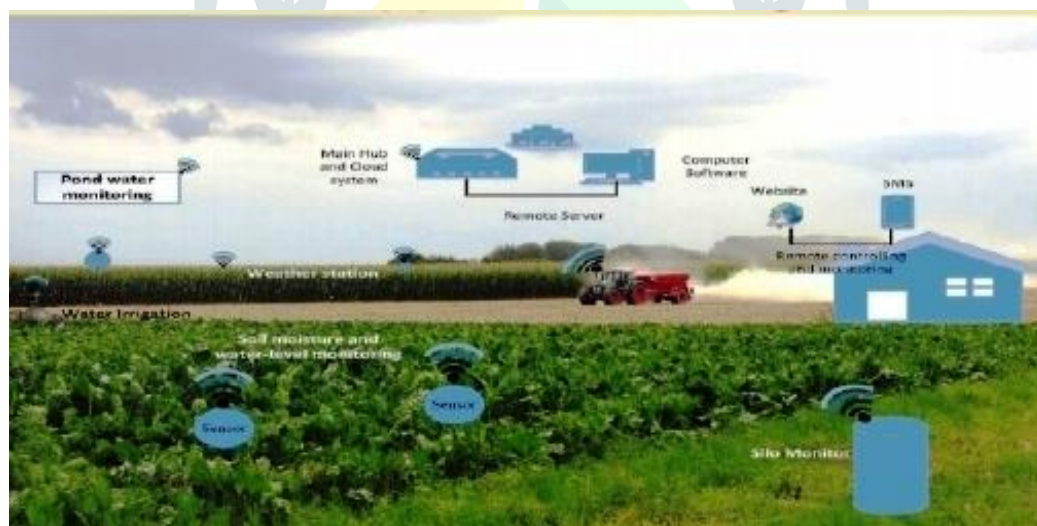


Fig 1 : Smart Agriculture using different Sensors.

RELATED WORKS

In general, IOT using in smart agriculture and show different type of techniques use for smart agriculture and obtain the beneficial for the agriculture purpose. In Indian the population is dependent on agriculture for their livelihood. So we need to integrate the IoT technology for agriculture so as to increase the growth of agriculture, which in turn strengthens the economy of our country. Growth of crops is the major challenge in our country as most population is dependent on agriculture. So for the growth of our agriculture we need to incorporate Internet of Things, cloud computing and sensors in our fields.

Web of Things (IoT) is accepting an incredible consideration because of its potential quality and capacity to be coordinated into any mind boggling framework. The IoT gives the obtained information from the earth to the Internet through the specialist organizations. This further causes clients to see the numerical or plotted information. Growing such a framework for the IoT is a perplexing assignment because of the differing assortment of gadgets; connect layer advances, and administrations. Estimating metrological parameters impact crop development, improvement and yields of farming.

Smart agriculture, which is the revolution in traditional farming using new technologies such as big data, Hadoop, R programming and cloud computing. In this agricultural research the research will in three layers. In the First Layer that is data collection layer, collecting data using sensors related to weather and environmental changes, identification of soil types, crop identification ,yield tracking, water availability in the soil .

Snowberry M. (2018) has discusses the combine image processing and IoT based technology for developing smart agriculture based system. The virtue is to gather real time data of agriculture domain using cameras and sensors and send that data through message to farmers Web of Things (IoT) is accepted to be one of the quickest creating advances and of research enthusiasm for software engineering.

IoT innovation helps in gathering data about conditions like climate, dampness, temperature and richness of soil, Crop web based checking. IOT enables ranchers to get associated with his homestead from anyplace whenever. Remote sensor systems are utilized for observing the homestead conditions and smaller scale controllers are utilized to control and mechanize the ranch forms.

Ranch Monitoring is the most helpful advancement for the individuals of India. As farming is the primary wellspring of work, there is a need to build the efficiency with decline in cost, time and human exertion. This smart farm monitoring system is a very important system as it supports farmer by providing can get the information about the agricultural field like humidity, temperature and moisture content of the sand by the web application developed.

Some of the verified distributed computing has happened as another model for overseeing and conveying applications as administrations effectively. Intermingling of distributed computing with advances, for example, remote sensor organizing, Internet of Things (IoT) and Big Data investigation offers new utilizations' of cloud administrations. The proposed framework assembles data from different clients through preconfigured gadgets and IoT sensors and procedures it in cloud utilizing huge information investigation and gives the necessary data to clients consequently.

IoT enables items to be detected or controlled remotely crosswise over existing system foundation, making open doors for more straightforward incorporation of the physical world into PC based frameworks, and bringing about improved productivity, precision and financial advantage notwithstanding decreased human intercession. The up and coming IoT will be extraordinarily displayed by the tremendous amount of heterogeneous arranged installed gadgets that create seriously "Huge information". They can be recognized, decided and got to by gadgets like actuators, sensors or other shrewd gadgets as the tremendous expanding of existing gadgets and sensors.

APPLICATION OF IOT IN SMART AGRICULTURE

- Data, huge amounts of information, gathered by shrewd agribusiness sensors, Like as climate condition, soil quality harvest's development procedure and so on.
- Better authority over the inner procedures and therefore, lower generation dangers. The capacity to anticipate the yield of your creation enables you to get ready for better item conveyance. On the off chance that you know precisely how much yields you are going to gather, you can ensure your items won't lie around unsold.
- Crop the executives one more sort of IOT item in agribusiness and another component of accuracy cultivating are crops the board gadgets. It helps to spots to field to gather information explicit to yield cultivating.
- The versatility Smart cultivating application ought to be custom-made for use in the field. An entrepreneur of ranches trough ought to have the option to get to the data on location or remotely by means of a Smartphone or work area

computers etc.

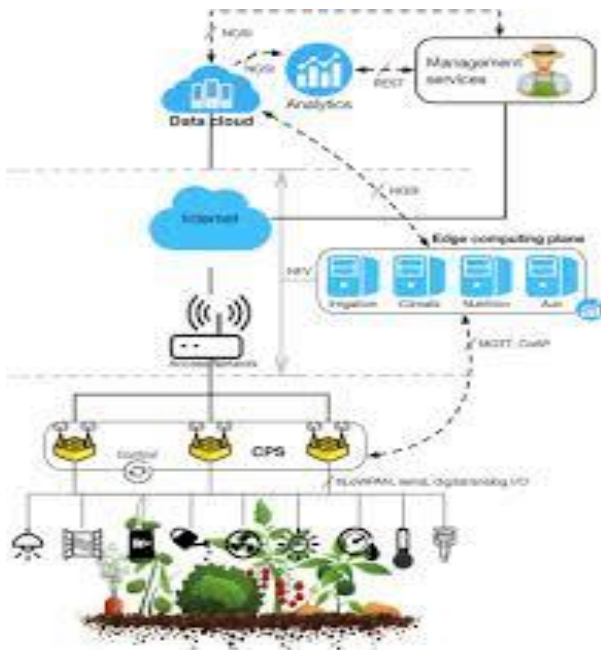


Fig 2 : Smart farming monitoring on single user.

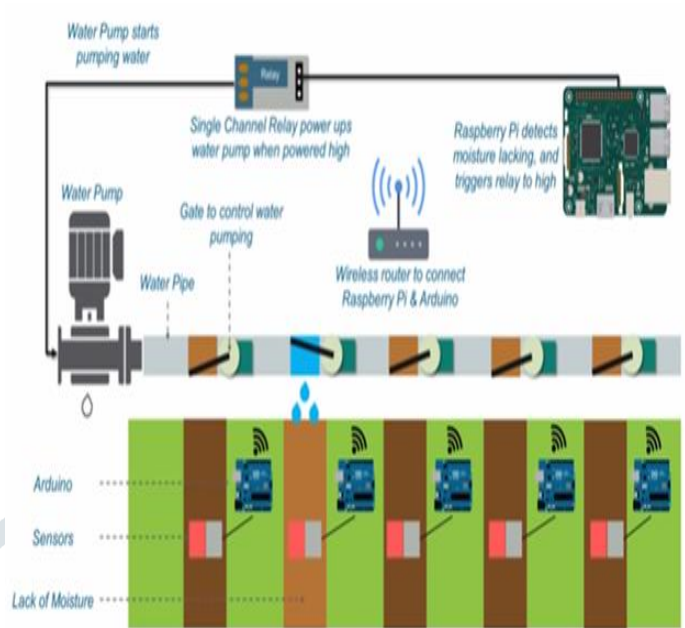


Fig 3 : Smart Irrigation System using Arduino board.

PROPOSED WORK :

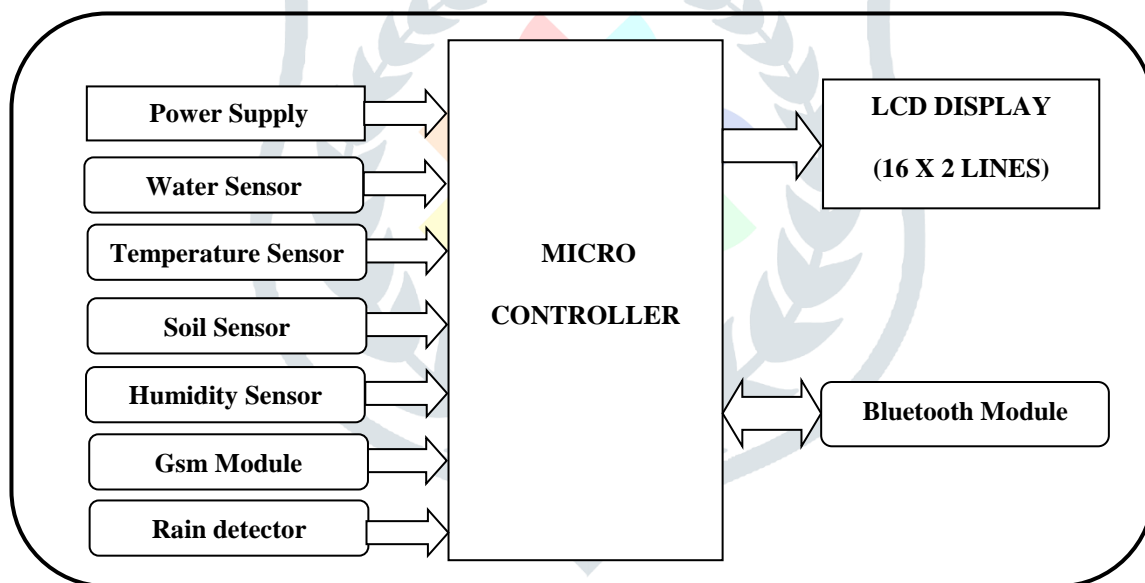


Fig 4 : Proposed System for Smart Agriculture.

In this proposed system, the sensors are associated with microcontroller.. Here the microcontroller continuously collects the sensor information like soil, humidity, pH etc updates the data in to WEB page by using GPRS modem and These values are displayed on the LCD and also continuously checks the threshold values and if any abnormal condition detected it will give the given message on the smart devices, web page ,and also develop the android app. all to the data will store in real time and suggest the which type of need to the area of the field. Some of the critical condition of field.

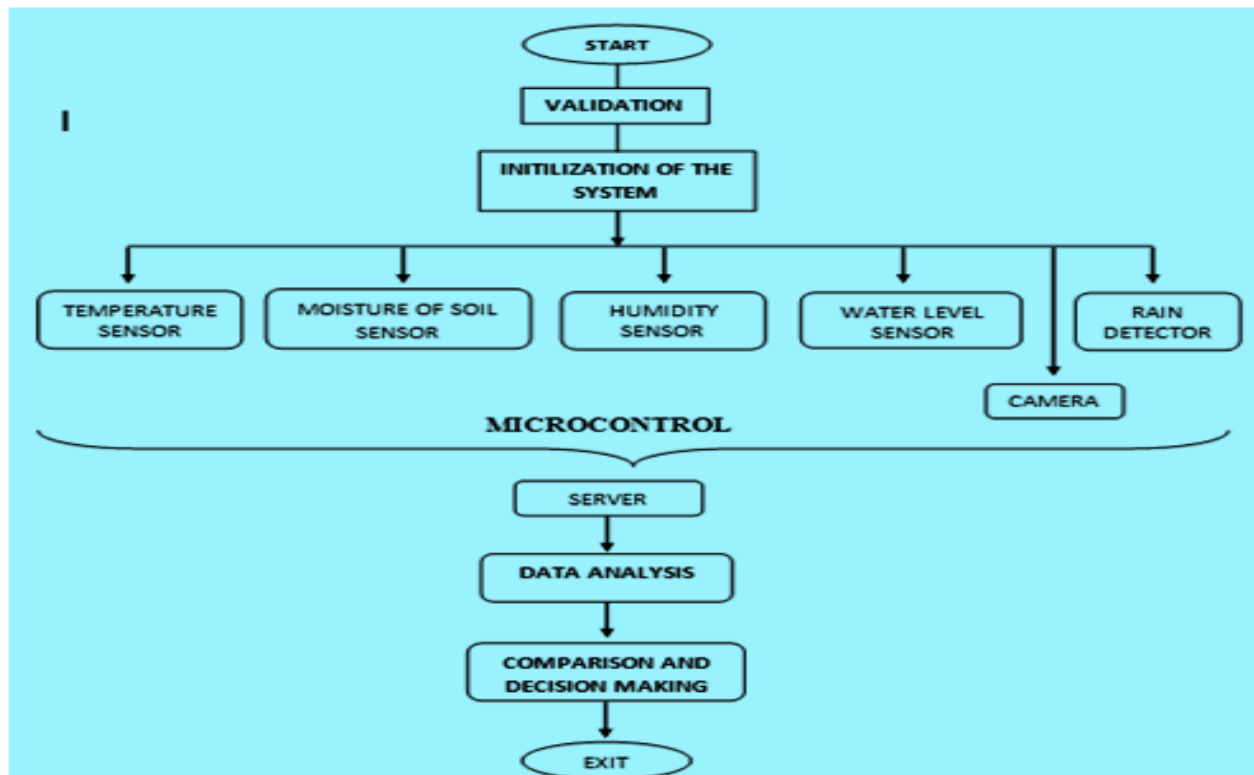


Fig 5: Flow Chart of Proposed Model.

LITERATURE SURVEY

In general, IOT using in smart agriculture and show different type of techniques use for smart agriculture and obtain the beneficial for the agriculture purpose. In Indian the population is dependent on agriculture for their livelihood. So we need to integrate the IoT technology for agriculture so as to increase the growth of agriculture, which in turn strengthens the economy of our country. Growth of crops is the major challenge in our country as most population is dependent on agriculture. So for the growth of our agriculture we need to incorporate Internet of Things, cloud computing and sensors in our fields.

Khursid, A., *et al* (2018) defined as an Internet of Things (IoT) is accepting an incredible consideration because of its potential quality and capacity to be incorporated into any intricate framework. The IoT gives the procured information from the earth to the Internet through the specialist co-ops. This further causes clients to see the numerical or plotted information. Growing such a framework for the IoT is a mind boggling task because of the differing assortment of gadgets, interface layer advancements, and administrations. Determining metrological parameters impact crop development, advancement and yields of agribusiness .Kondapally M., Aarti Priya R. *et al* (2018) have proved that the importance of smart agriculture, which is the revolution in traditional farming using new technologies such as big data. Hadoop, R programming and cloud computing In this agricultural research the research will in three layers. In the First Layer that is data collection layer, collecting data using sensors related to weather and environmental changes, identification of soil types, crop identification, yield tracking, water availability in the soil .

Snowber M. (2018) has discussed the combine image processing and IoT based technology for developing smart agriculture based system. The virtue is to gather real time data of agriculture domain using cameras and sensors and send that data through message to farmers. Internet of Things (IoT) is believed to be one of the fastest developing technologies and of research interest in computer science.

Veena S., K Mahesh, *et al* (2018) described that IoT innovation helps in gathering data about conditions like climate, dampness, temperature and ripeness of soil, Crop web based observing. IOT enables ranchers to get associated with his homestead from anyplace whenever. Remote sensor systems are utilized for observing the ranch conditions and miniaturized scale controllers are utilized to control and mechanize the homestead forms.

Ranjitha K. (2018) has work on sensor systems and their use in Farm Monitoring is the most helpful advancement for the individuals of India. As agribusiness is the principle wellspring of work, there is a need to expand the efficiency with decline in cost, time and human exertion. This smart farm monitoring system is a very important system as it supports farmer by providing can get the information about the agricultural field like humidity, temperature and moisture content of the sand by the web application developed.

Singh G. S., Chana I. *et al* (2017) verified distributed computing has happened as another model for overseeing and conveying applications as administrations productively. Assembly of distributed computing with advances, for example, remote sensor organizing, Internet of Things (IoT) and Big Data investigation offers new uses' of cloud administrations. The proposed framework assembles data from different clients through preconfigured gadgets and IoT sensors and procedures it in cloud utilizing enormous information investigation and gives the necessary data to clients naturally.

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CONCLUSION

In this research paper, we review studies on step by step of studied about the Iot use in smart farming. The smart farming utilizing IOT has been tentatively demonstrated to work satisfactorily by checking the estimations of moistness and temperature, humidity, rain detector effectively. Through the web control the engine in the field .it is use in microcontroller that is directly connected to server and generates all data like as stores the sensor parameters in the opportune manner. This will push the client to analyse the states of different parameters the parameters of field appropriately. At last, we presume that programmed water system framework in more effective than planned water system process. It is possible to real time suggestion and supports from this services. The main objective of smart agriculture system to built the create user friendly environment and time and money saving, it principle target of smart agriculture framework to assembled the make easy to use condition and time and cash sparing, and more benefit of farmer.

FUTURE SCOPE :

In this review paper study on level by level to including the smart agriculture using different type of sensor like soil, humidity, temperature, water level, pH etc. In future work is to provide security system to field.

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AUTHOR PROFILES



Nitin Kumar Vishwakarma BCA (2011) in Dr. C.V. Raman University, Kota, Bilaspur, C.G. MCA (2014) from Guru Ghasidas University Bilaspur. Currently Research Scholar in DR.C.V Raman University Kota Bilaspur (C.G.)



Dr. Ragini Shukla B Sc in Maths 2004 CMD PG College, Bilaspur. MCA 2007 GGU Bilaspur, PhD in Computer Science 2018 Dr. C.V.Raman University, Kota, Bilaspur, C.G. Interest Research area Soft Computing, Machine Learning.



Dr. Ravi Mishra received B.E. degree in electronics and telecommunication engineering (2002) from Bhilai institute of technology, Durg, Pt. Ravishankar shukla university. He received his M.Tech degree in Computers (electronics and telecommunication engineering) from college of engineering pune, Pune university, India(2008) and he received his PhD in electronics and communication Engineering from Dr. C.V Raman university (2017). His current research interest includes design, analysis and programming for embedded systems used for wireless sensor networks in smart buildings, Video shot boundary detection.