

IOT based Smart Agriculture and Its Challenges, future directions

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Abstract

Agriculture is the primary occupation of the villagers. Nowadays the people can't focus on farming because the farmer is facing many problems as a tray of soil, no rainfall, Traditional techniques, less crop production and some other issues. We require automation of agriculture by using modern science and technology for high productivity of crops. Internet of things is emerging technology and it can be used for smart farming to enhance quality of agriculture. In future the agriculture is will be lead some challenges for innovation of smart farming.

Keywords- Internet of things, smart agriculture, challenges.

INTRODUCTION

In India 5,650 farmer suicide rate was reported by National Crime Records Bureau in the year 2014. From 2005 there are 1.4 to 1.8 suicide rate been reported in 100,000 total population. India has Farming as major occupation so this suicide rate is huge for country like India. India is also the big contributor in the world food market and hence it is necessary to use available technologies for the benefits of Indian farmers so as to control the suicide rate [1]. India is a land of various soils and different weather condition. Agriculture is an important business because the development of agriculture is increasing food and need for human population. Someone who works as a farmer is in agriculture fields must know the practice of growing crops or raising animals. Since the human was start agriculture using some farming techniques and the farmers have benefits of many ways used by animals. An environmental issue that's global warming affects agriculture through a change in average temperatures, rainfall, weather condition and growth of the planet.

On future climate change will probably negatively affect crop production. Now Farmers are following traditional farming for crop production that's not effective of it so they need to improve modern technology using IOT with smart

agriculture. The smart agriculture is providing more research opportunities.

INTERNET OF THINGS

Internet of things is emerging technology in now a days and interconnecting device via internet. This is provided to device communication with each other or with humans. The IOT components are sensors, actuators, embedded system and internet connection. It is widely used in various applications such as smart cities, smart home, smart agriculture, E-Health and etc. IOT is important role in precision of agriculture consider three layers as perception, transportation and application.

SMART AGRICULTURE

India is an agricultural country and most of the people depend on agriculture and it is a part of the economy. The farmers are still now using traditional methods and not interest in agriculture that's affected crop production. There are needed to implement modern science and technology in agriculture that's IOT. Internet of things is providing smart farming to increase the productivity, better decision for formers, smart agriculture using automation. IOT application is providing intelligent management tool for crop production, processing and improve the overall

agriculture. IOT sensors capable of sensing information that are all stored and analysis predict results in a cloud environment.

CHALLENGES IN AGRICULTURE

Wild Animal Attacks

The farmer gets more problems from animals that damage crop, fruits, leaf; whole with soil and etc. this is major issues in the agriculture.

Crop Production

In recent year the agriculture productivity is very low because climate change, no rain, less water to crop so need more water there are many problems for the farmer. Increase crop production is using new farming techniques.

Crop monitoring

The health of the crop is as per growth stage by crop monitoring. The crop information is collected and analysis between statistical data and agriculture environment data. This is used to improve the efficient crop.

Leaf diseases

Leaf diseases are major issues in agriculture. To find the early stage of leaf diseases is big challenges in agriculture fields. Early automatic detection techniques of diseases have helped to improve the high quality of the crop.

Water management

Water source is needed to alive of the crop every stage. The farmer is mostly depends on rain water, but climate was changing so minimum of rainfall. The water management techniques will use avoids wastage of water.

Expert system

Modern farmer is requiring expert advice for decision making of agricultural problems. The recent technology gives more specialties to agriculture and when the farmer get problem that's solution for automation of current technology.

CONCLUSION

Agriculture is profitable business compare with other and also it is important for human life. The farmer needs new farming technology. IOT is widely used to connect devices and it is better for agriculture that's opportunity for developing an IOT application for smart agriculture. It is providing connectivity of internet to controller, actuators and sensors that are used to design and implementation of a cloud-based IOT scheme for precision agriculture.

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