



# A STUDY ON AGRICULTURE USING INTERNET OF THINGS (IOT)

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## Abstract

**Internet of Things (IoT) plays a vital role in agriculture sector. These days there is a vast enhancement in technologies and techniques in agriculture sector. To improve efficiency, time, cost and productivity we need to switch the technology to IoT. IoT is the network of devices to transfer the information without human involvement.**

**Keywords: IoT.**

## 1. Introduction

IoT stands for "Internet of Things". It is a network of Internet connected objects that are able to collect and exchange data. In simple ways to put you have "things" that sense and collect data and send it to the Internet. This data can be accessible by other "things" too. IoT systems allow users to achieve deeper automation, analysis and integration within a system. Its new and advanced elements bring major changes in the delivery of products and services.

## 2. Related Works

### IoT BASED SMART AGRICULTURE

K S R Prathibha, A Hongal, MP Joythi [1] this paper describes the work on IoT based smart agriculture . Globally IoT plays a vital role in smart agriculture. Technology plays a significant role in Agricultural field. IoT is one among them. This paper aims making use of evolving technology that is IoT and smart agriculture using automation. In order to get the yield of the crops, environmental factors are taken into account. IoT sensors are capable of monitoring environmental factors. The feature of this paper includes monitoring temperature and humidity in agricultural field s through sensors using CC3200 single chip. Camera is interfaced with CC3200 to capture current images of particular

field and those images are sent to the farmers through GPRS. Temperature infrared thermophile sensor TMP700, it senses the temperature values in real time and humidity sensor -HDC1010 path the relative moisture of air within the farming field.

### A MODEL FOR SMART AGRICULTURE

A Patil, N R Kale [2] described a model for smart agriculture using IoT. IoT gives a platform to researchers to maintain real time data and send alerts immediately to farmers. The main task of the paper is to develop real time monitoring system for soil properties like temperature, moisture and advisory models for pest and disease prewarn. One can control various operations of the field from anywhere anytime by mobile and web application. The feature of this paper includes SAIoT model which serves the farm field through sensing local agricultural parameters, reliable transfer of data and prewarn. From application layer system can obtain and analyse weather information from the Internet. By analysing the soil moisture values the system is able to keep required quantity of water needed by the crops and simultaneously avoids excess of water which might destroy the crops.

### SMART SOIL MONITORING SYSTEM

Dr N Ananthi [3] this paper describes the work on IoT based smart soil monitoring system for agricultural production. This technology uses three different sensors namely ph sensor which measures the alkaline content in the soil, temperature sensor measures the temperature of the soil in the field and humidity sensor measures the soil moisture level. The techniques used are socket communication and SPI(Serial Peripheral Interface). Socket communication is used to

interact with same or different machines and the term "socket" is also used for an internal endpoint of local inter process communication basically in embedded systems. On the other hand there are technologies which are included namely microchip, Raspberry Pi2 and web camera respectively.

#### SMART WATER DRIPPING SYSTEM

Priyanka Padalalu, Sonal Mahajan [4] this paper aims in making smart water dripping system using IoT technology. The hardware components used are ph sensors, temperature sensors, moisture sensors, water pump, servo pump, power supply. The software components used are webscraper it is used to collect the weather forecast information, android studio an android app which will remotely control the motor, Mysql database server it helps in predefining moisture, temperature and ph ranges. Fertilizers will be suggested by using some data mining concepts. Depending upon the type of the soil, such as loamy and sandy, upon the nutrient content, the correct amount and type of sulphur fertilizer for the appropriate crop is suggested. The benefits of this process are there will be conservation of water, avoidance of constant vigilance and remote automation.

#### SMART SOLUTION FOR LEAF DISEASE DETECTION

Apeksha Thorat, Sangeetha Kumari [5] this paper aims in describing the leaf disease detection using IoT technology. Crop disease detection is done by using Image Processing. The camera is placed near crop so that image of the leaf is taken by the camera and it is sent to the server, using image processing techniques leaf disease is detected, status is send back to the farmer on the web page and mobile phone on the app. Resources used are Raspberry Pi and sensors. Sunlight is the main factor which affects the result. In night the images cannot be captured. If there is no power supply to server then whole system is unable to do tasks.

### 3. Conclusion

These above papers briefly illustrated how IoT can be adopted to our Indian agriculture. IoT works in different domains to improve time efficiency, minimizes human efforts and helps to gain smart farming which is very important for farmers.

### Références

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