SMARTFARMER
IOT ENABLED SMART FARMING APPLICATION

PROJECT REPORT

1. INTRODUCTION
I. PROJECT OVERVIEW

The objectives of this report is to proposed IoT based Smart Farming System which will enable farmers to have live data of soil moisture environment temperature at very low cost so that live monitoring can be done.

Internet of things IOT consists of two words Internet and Things .The term things in IOT refers to various IOT devices having unique identities and have capabilities to perform remote sensing , actuating and live monitoring of certain sort of data. IOT devices are also enable to have live exchange of data with other connected devices and application either directly or indirectly , or collected data from other devices and process the data and send the data to various servers. The other term internet is define as Global communication Network connecting Trillions of computers across the planets enabling sharing of information .Thus the IOT can be define as :"A dynamic Global Network Infrusture with self configuring capabilities based on standard and inter operable communication to protocol where physical and virtual things have identities, physical attributes ,and virtual personalities and use intelligent interfaces and are seamlessly integrated into the information network ,often communicate data associated with user and their environment."

An ideal IoT device consists of various interfaces for making connectivity to other devices which can either be wired or wireless.

II. PURPOSE

We are creating IBM Watson IOT technique to check the temperature, humidity, soil moisture through the node red and MIT inventor. Through this by using of fast 2 sms method. We can use this method, for monitor the project. By using of IBM cloud we can operate Smart Farming. The senor can be used for monitoring the Agriculture by using IOT.

2. LITERATURE SURVEY
## 2.1 EXISTING PROBLEM

Literature Survey is abstract of the agriculture there some of the points in literature. This project about agriculture and about IOT based. One of the important applications of Internet of Things is Smart agriculture. Smart agriculture reduces wastage of water, fertilizers and increases the crop yield. In the current agriculture system the specification such as temperature, moisture, humidity are detected manually which increases the labor cost, time and also monitoring cannot be done continuously. In this paper irrigation process is done automatically using different sensors which reduces the manual labor. Here a system is proposed to monitor crop-field using sensors for soil moisture, humidity and temperature. By monitoring all these parameters the irrigation can be automated.

2.2 REFERENCES

Most important factors for the quality and productivity of plant growth are temperature, humidity and light. Continuous monitoring of these environmental variables provides valuable information to the grower to better understand, how each factor affects growth and how to maximize crop productiveness. The optimal greenhouse micro climate adjustment can enable us to improve productivity and to achieve remarkable energy savings especially during the winter in northern countries. WSN composed of hundreds of nodes which have ability of sensing, actuation and communicating, has great advantages in terms of high accuracy, fault tolerance, flexibility, cost, autonomy and robustness compared to wired ones. Moreover, with the onset of IoT and M2M communications, it is poised to become a very significant enabling technology in many sectors, like military, environment, health, home and other commercial areas . IoT is a general term, covering a number of technologies that allows devices to communicate with each other, with or without human intervention. This paper presents a novel approach to implement wireless greenhouse automation and monitoring system which in a timely manner provides a possibility for screen monitoring of detailed data about the conditions of the greenhouse. Furthermore, the suggested setup can be incorporated with other internet and messaging services (i.e. Web, WAP, SMS) to provide communication for farmers. The wireless sensor network (WSN) is one of the most significant technologies in the 21st century and they are very suitable for distributed data collecting and monitoring in tough environments such as greenhouses. The other most significant technologies in the 21st century is the Internet of Things (IoT) which has rapidly developed covering hundreds of applications in the civil, health, military and agriculture areas. In modern greenhouses, several measurement points are required to trace down the local climate parameters in different parts of a large-scale greenhouse in order to ensure proper operation of the greenhouse automation system. Cabling would make the measurement system expensive, vulnerable and also difficult to relocate once installed. This paper presents a WSN prototype consisting of MicaZ nodes which are used to measure greenhouses' temperature, light, pressure and humidity. Measurement data have been shared with the help of IoT. With this system farmers can control their greenhouse from their mobile phones or computers which have internet connection.

3. IDEATION & PROPOSED SOLUTION
3.1 EMPATHY MAP CANVAS
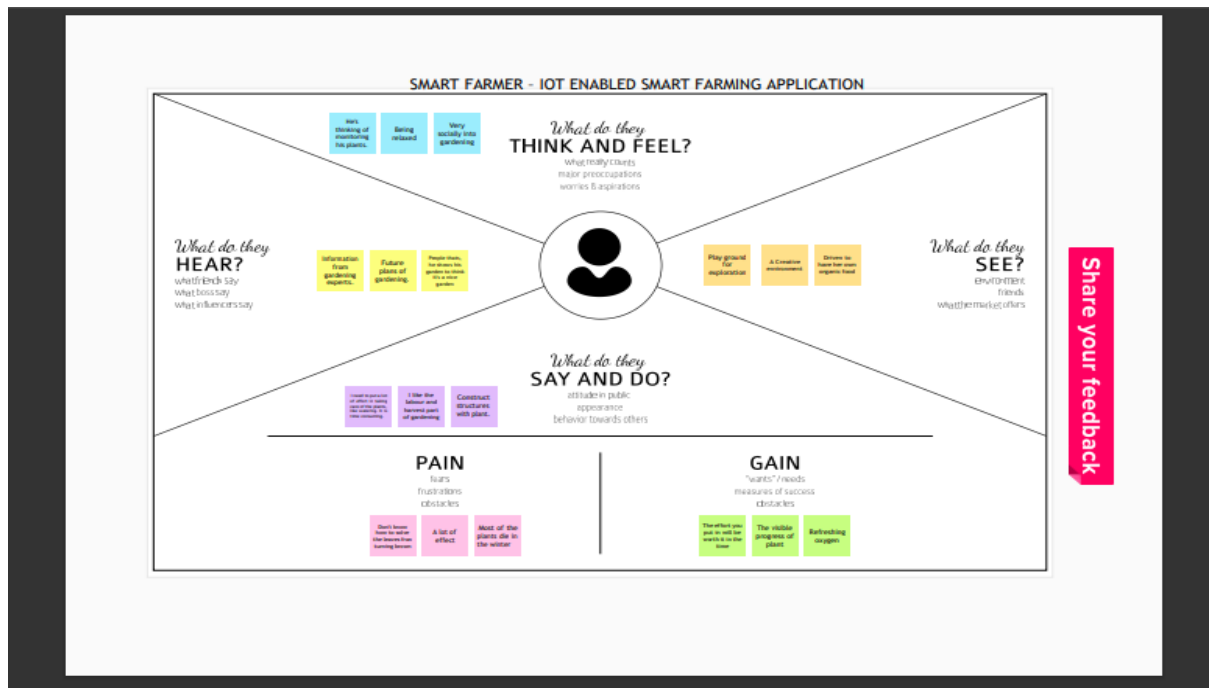
3.2 IDEATION & BRAINSTORM

4. PRE REQUISTIES
4.1. IBM CLOUD SERVICE

To create IBM cloud service account and create IBM Watson IOT platform. IBM Cloud Paks are **software products for hybrid clouds that enable you to develop apps once and deploy them anywhere**. Virtual Private Cloud (VPC) is available as a public cloud service that lets you establish your own private cloud-like computing environment on shared public cloud infrastructure. IBM Watson is AI for business. Watson **helps organizations predict** future **outcomes, automate complex processes, and optimize employees' time**.

4.2 SOFTWARE

To code a python code in a software.

4.3 MIT APP INVENTOR

MIT App Inventor is an intuitive, visual programming environment that allows everyone even children to build fully functional apps for smartphones and tablets. Those new to MIT App Inventor can have a simple first app up and running in less than 30 minutes.

4.4 FAST2SMS DASHBOARD

Bulk SMS API is a software interface that enables your business to integrate SMS into an existing software platform, website, third-party application, mobile app, or CRM. By simply entering a few parameters, you can send any number of customised SMSes to a large number of users/customers.

DEVELOP MOBILE APPLICATION

By using of login the IBM cloud and IBM Watson creating a node red. Node red process can be create after that in node red create a dashboard with nodes create the the gauges, home class link the process in dashboard. Create a Node red in this process.

PROJECT DEVELOPNMENT PHASES

They are 4 sprint in the phases. Each phases has a different of node red, MIT app inventor, C++ code and languages. In phases has this own code and different phases. Sprint 1 has the C++ code of Arduino. Sprint 2 has the Model of the project. Sprint 3 has the MIT app Inventor. Sprint 4 has the all together nodeRED, fast2sms app and IBM Watson.

CONCULSION

By all together we create a video and attached in the github and process in the link the demo link. This project has the humidity, temperature and soil moisture in the agriculture that senor are connected and information passed through the user app.