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IOT Based Onion Preservation System

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***Abstract* - Internet of Things plays a vital role in smart agriculture monitoring system. Smart farming is an emerging concept, because IoT sensors are capable of providing information about their fields. Wireless Sensor Networks are performing a key role in different applications such as healthcare, agriculture, environment monitoring, home automation. Monitoring environmental factors is the major factor to improve the yield of the crops. The main feature of this paper is monitoring temperature and humidity in agricultural field. This monitoring is done by using sensors and sending the message to the farmer. The main purpose of paper is to propose a grid system onion storage methodology which will help to reduce onion degradation due to temperature and humidity. If in the storage of onions, one of the onion starts degradation then this system will send the message to the farmer. This will help to improve yield better quality onion and save the farmers from the major economic loss.**

Keywords: Wireless Sensors Network, Sensors, Climate, Agricultural Productivity, Internet of Things.

I. INTRODUCTION

The Internet of Things (IoT) is a computing concept that describes the idea of everyday physical objects being connected to the internet and being able to identify themselves to other devices. Internet of Things focuses on connection of different sensors to physical object and transmits information to internet.

It has a significant role in the field of agriculture in terms of control and protection, providing real time information and communicating with the physical world. Onion storage methodology to reduce its degradation. Focuses on studying various monitoring systems that have been designed and implemented in the field of agriculture. Internet of Things plays an important role in smart agriculture monitoring system.

Smart farming is an emerging concept, because IoT sensors are capable of providing information about their fields. The main feature is monitoring temperature and humidity in agricultural field. This monitoring is done by using sensors and sending the message to the farmer. The main purpose is to propose a grid system onion storage methodology which will help to reduce onion degradation due to temperature and humidity. If in the storage of Onions, one of the onions starts degradation then this system will send the message to the farmer. This will help to improve yield better quality onion and save the farmers from the major economic loss.

India is the second most populated country of world after china Population of India is 1.37 billions. Onion is one of the biggest vegetable crops in India. India is the Second Largest Producer of Onion in the World. Onion is one of the most important commercial crops of India. In India, onion crop is grown in above 1.20 millions hector area with an animal production 19.14 million tons with productivity 16.12 tons per hectors. By considering survey, we observed 60 to 75 percent onions are get wasted from total production. These are big loss to our farmer and our nations. To overcome from this problem and save the money of our farmers and nation, we are working on this project.

II. METHODOLOGY

In that some method are used for display the result. So, in that the Android application using the Wi-Fi they are interfacing the hardware values. In that some Hardware are used like Temperature sensor, Humidity sensor, moisture sensor, Arduino, Wi-Fi -ESP8622, weather temperature sensor. A temperature sensor is a device that provides for temperature measurement through an electrical signal.

A thermocouple (T/C) is made from two dissimilar metals that generate electrical voltage in direct proportion to changes in temperature. The LM35 is one kind of commonly used temperature sensor that can be used to measure temperature with an electrical o/p comparative to the temperature (in °C). It can measure temperature more correctly compare with a thermistor.

This sensor generates a high output voltage than thermocouples and may not need that the output voltage is amplified.

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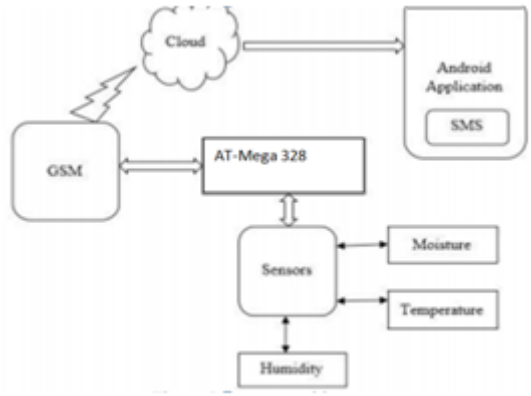

Figure 1: System Architecture

The LM35 has an output voltage that is proportional to the Celsius temperature. The scale factor is .01V/°C. Humidity sensor is working voltage 3.3 V-5 V Humidity measurement range 20 percent -95 percent, humidity measurement error +-5 percent. Temperature measurement range 0 -50, measurement error +-2 degrees.DHT11 digital temperature and humidity sensor module is a composite Sensor contains a calibrated digital signal output of the temperature and humidity. Arduino is an open-source electronics platform based on easy-to-use hardware and software. Arduino boards are able to read inputs - light on a sensor and turn it into an output - activating a motor, turning on an LED, publishing something online.

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III. EXPECTED RESULT

This system will provide notification to owner (farmer) by mean of audio, display and wireless message (SMS).it is low cost, low maintenance and easy to install, anyone can afford it. We can have real time data which can be used for future research/purposes.

IV. CONCLUSION

For fresh onions (sample), the output readings seems to be controlled (within the range) according to Indian environment. We started rottening process and performed the same procedure and we observed that the values of parameters are getting increased rapidly. In India considering erratic environment monitoring temperature and various parameters are important. In addition to that rain is also a considerable parameter. By using this system, one can monitor all the desired parameters and provide maximum controlled onion quality. This system will provide notification to owner (farmer) by mean of audio, display and wireless message (sms).it is low cost, low maintenance and easy to install, anyone can afford it. We can have real time data which can be used for future research/purposes.

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