IOT Based Green House Monitering System

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Abstract- *IOT (internet of things) based greenhouse monitoring system contains use of ESP8266 for communication between the microcontroller and internet to monitor the various parameters such as temperature, humidity.*

Keywords- ESP8266, temperature sensor, huimidity sensor, LCD display,light sensor, microcontroller;

I. INTRODUCTION

The IOT based greenhouse monitoring system contains temperature, humidity etc. continuously monitoring using wi-fi. It shows time to time updates about temperature and humidity by using internet website.

II. OBJECTIVES

The objective of our project is to implement a real time system for green house monitoring using internet of things and automatic control on it. System should be simple as possible Cost effective to all people Accurate reading More efficient More flexible for modification.

III. SYSTEM SPECIFICATION

A. Microcontroller ATmega328

The high-performance Microchip 8-bit AVR RISC-based microcontroller combines 32KB ISP flash memory with read-while-write capabilities, 1KB EEPROM, 2KB SRAM, 23 general purpose I/O lines, 32 general purpose working registers, three timer/counters with equate modes, programmable watchdog timer with internal oscillator, a byte-oriented 2-wire serial interface, internal and external interrupts, serial programmable USART, SPI serial port, 6-channel 10-bit A/D converter (8-channels in TQFP and QFN/MLF packages), and five software selectable power saving modes. The device operates between 1.8-5.5 volts.

B. DHT 11

The temperature and humidity sensor, DHT 11 is a complex Sensor contains a standardized digital signal output of the temperature and humidity. Application of an enthusiastic digital modules collection technology and the temperature and humidity sensing technology, to ensure that the product has high reliability and excellent long-term stability. The sensor contains a sense of soggy environment and connected with a high-performance 8-bit microcontroller. It is low cost, long-term stability, relative humidity and temperature measurement, excellent quality, fast response, strong anti-interference ability, long distance signal transmission, digital signal output, and precise calibration.

C. ESP8266

For self-sufficient Wi-Fi networking solution, ESP8266 gives a complete and, allowing it to either host the application or to offload all Wi-Fi networking functions from another application processor. ESP8266 on-board processing and storage capabilities allow it to be integrated with the sensors and other application specific devices through its GPIOs with minimal development up-front and minimal loading during runtime. With its high degree of on-chip addition, which contains the antenna switch balun, power executive converters, it requires minimal external circuitry, and the entire result, including front-end module, is designed to occupy minimal PCB area. Interchangeably, allocation as a Wi-Fi adapter, wireless internet access can be added to any microcontroller-based design with simple connectivity through UART interface or the CPU AHB bridge interface.

D. Light dependent resistors

Light dependent resistors have a perticular property in that they have the lightning condition in which they have been stored. These effects can be reduced by storing the LDRs in light prior to custom. The light storing decreases steadiness time to reach steady resistive values. Two cadmium sulphied photocounductive cells with spectral responces comparable to that human eye. The cell resistance decrease with growing light intencity. Applications contains smoke detection, automatic lightning condition, batch counting and burgler alaram system.

E. LCD display

A liquid-crystal display (LCD) is an electronically modulated optical device that uses the light-modulating

properties of LCD. Liquid crystals doesn't produce light directly, in its place using a backlight or reflector to yield an images in color or monochrome. LCD used to show information in digital mode such as value of a temperature, humidity. It also used for display information providing by the microcontroller.

IV. FLOW CHART

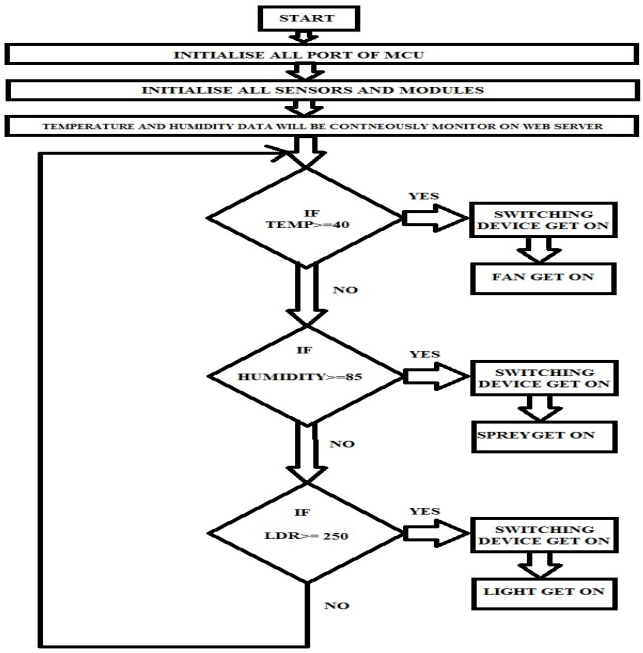

Figure 1.

V. RESULT

Temperature sensor detect temperature and microcontroller compare it with threshold value and take decision to on fan Humidity sensor detect humidity and microcontroller compare it with threshold value and take decision to on spryer motor ESP8266 gives info through internet to monitor temperature and humidity continuously.

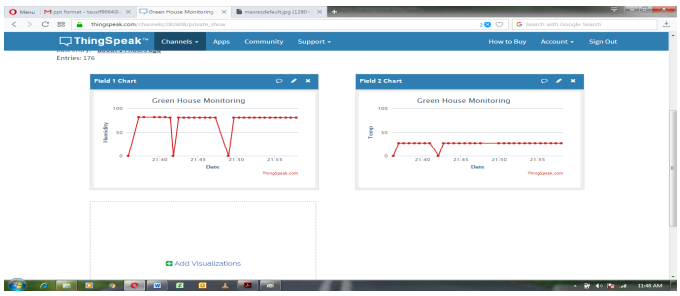

Figure 2.

VI. CONCLUSION

A step-by-step tactic in designing the microcontroller based system for measurement and control of the three crucial parameters for plant growth, i.e. temperature, humidity and light intensity, has been followed. The results obtained from the measurement have shown that the system performance is quite reliable and accurate. The use of internet gives continuous update about humidity and temperature. It helps to analyse environment of green house. The system has effectively overcome quite a few inadequacies of the existing systems by dropping the power consumption, maintenance and complexity, at the same time providing a flexible and precise form of maintaining the environment. The continuously decreasing costs of hardware and software, the wider acceptance of electronic systems in agriculture, and an emerging agricultural control system industry in several areas of agricultural production, will result in reliable control systems that will address several aspects of quality and quantity of production.

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