ISSN XXXX XXXX © 2019 IJESC

Research Article Volume 9 Issue No.3

IOT Based Automation Unit for Solar Irrigation Pump

Tathe P. B[1], Kolekar M. M[2], Kulkarni S. A[3], Shilwant. A. S[4]
Associate Professor[1], Student[2, .3, .4]
Department of Electronics and Telecommunication Engineering
Fabtech Technical Campus, Maharashtra, India

Abstract:
Indian economy is totally depends on agriculture. In agriculture number of plants requires specific environment for their growth. So we have to create environment which is suitable for the crops. And also automation is very needful to reduce human efforts. The main objective of this project is to maintain the temperature automatically which is required for the specific crops. It will helps enhances the productivity and quality of the crop. The main objective of our project is to maintain atmospheric condition for any crop. For an example if any crop requires the temperature range 22℃ to 30℃ if temperature increases more than 30℃ then the pump will get turn on automatically and pump will run water. If temperature decreases below 22℃ then the bulb will get on automatically for heat the room. Every time user not able to reach that location so we have designed the system which help to give an information about current atmospheric condition of that room with the help of IOT.

Keywords: Arduino UNO-R3, DHT11, ESP8266

I. INTRODUCTION

In recent days it is important to increase productivity by reducing human intervention. The temperature has its bad effects on the crops. So we have to control that temperature and maintain the suitable condition required to that crop. Mainly our focus is on to increase productivity and with minimum efforts of human. For example in the cultivation of mushrooms we require special treatment. The main objective of our project is to maintain atmospheric condition for any crop. For an example if any crop requires the temperature range 22 to 30. if temperature increases more than 30 then the pump will get turn on automatically and pump will run water. And when temperature goes below 22 then bulb will get turn on automatically to heat the room.

II. HARDWARE DISCRIPTION

The Arduino Uno is a microcontroller board based on the ATmega328 (datasheet). It has 14 digital input/output pins (of which 6 can be used as PWM outputs), 6 analog inputs, a 16 MHz ceramic resonator, a USB connection, a power jack, an ICSP header, and a reset button. It contains everything needed to support the microcontroller; simply connect it to a computer with a USB cable or power it with a AC-to-DC adapter or battery to get started.

The Uno differs from all preceding boards in that it does not use the FTDI USB-to-serial driver chip. Instead, it features the Atmega16U2 (Atmega8U2 up to version R2) programmed as a USB-to-serial converter. The Arduino Uno has a number of facilities for communicating with a computer, another Arduino, or other microcontrollers. The ATmega328 provides UART TTL (5V) serial communication, which is available on digital pins 0 (RX) and 1 (TX). An ATmega16U2 on the board channels this serial communication over USB and appears as a virtual com port to software on the computer. The '16U2 firmware uses the standard USB COM drivers, and no external driver is needed. However, on Windows, a .inf file is required. The Arduino software includes a serial monitor which allows simple textual data to be sent to and from the Arduino board. The RX and TX LEDs on the board will flash when data is being transmitted via the USB-toserial chip and USB connection to the computer (but not for serial communication on pins 0 and 1).

A SoftwareSerial library allows for serial communication on any of the Uno's digital pins.The ATmega328 also supports I2C (TWI) and SPI communication. The Arduino software includes a Wire library to simplify use of the I2C bus; see the documentation for details. For SPI communication, use the SPI library.

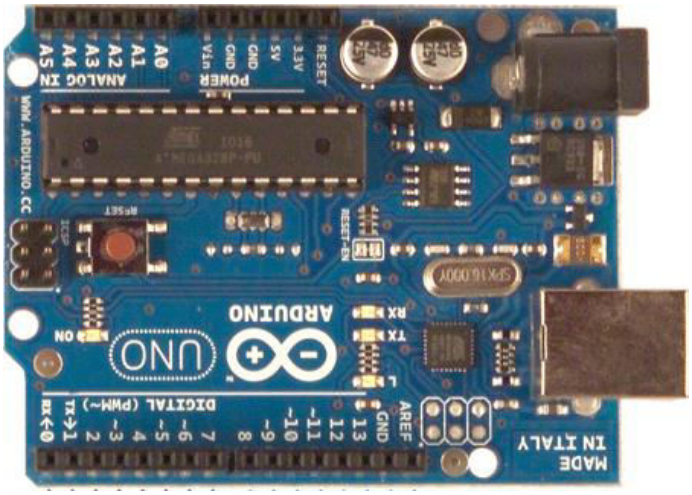


Figure.1. Arduino kit

- **FEATURES OF ARDUINO:**

• Microcontroller – ATmega 328P, 8 bit

• Operating voltage – 5 V

• Recommended input voltage – 7-12 V

• DC current on I/O pin – 40mA

• Frequency – 16MHz

A. The Structure of The System:

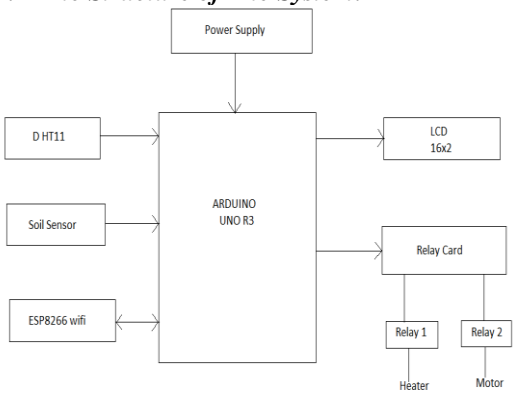


Figure.2. Block Diagram

The main process of data transmission system as shown in below fig.

B. Flow Chart:

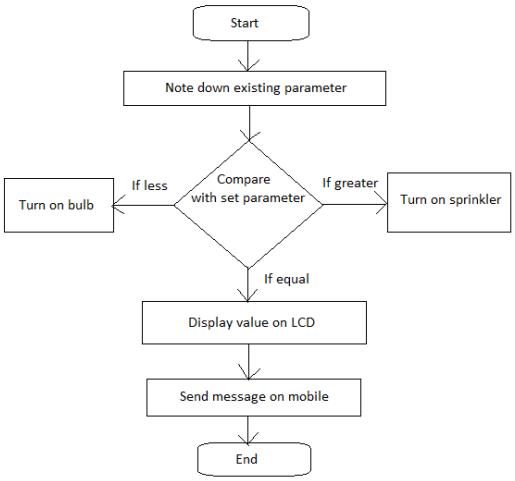
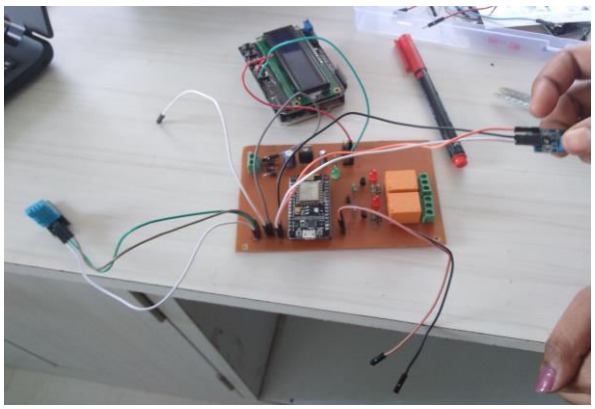


Figure.3. Flow Chart

III. RESULTS



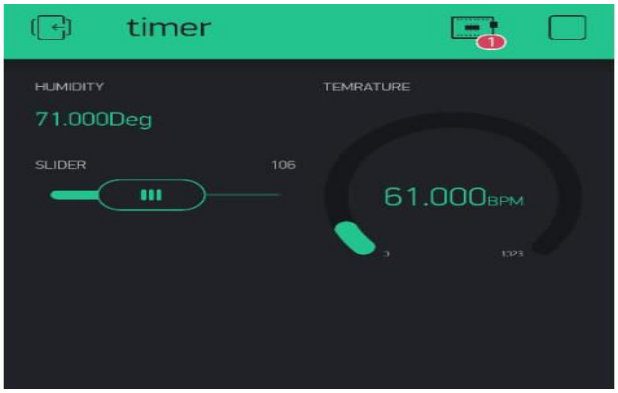


Figure.4. System Output

In this way we have received the value of temperature, humidity and PH level of soil on mobile with the help of IOT and by using slider we can set the temperature range for particular plant

IV. CONCLUSION

In this paper we have described the system which is used to create an atmospheric environment which is suitable for specific plant by using arduino. Also we have designed a system which helps us to know about the current temperature and humidity of that room with the help of iot.

ACKNOWLEDGMENT

We offer our sincere and heartly thanks ,with a deep sense of gratitude to our Managing Director Hon. Mr. Bhausaheb Rupnar to give such platform and Project Guide Prof. Tathe P. B. for his valuable direction and guidance to our project, his meticulous attention towards our project work without taking care of his valuminous work. We are grateful to the Dean Students welfare Prof. Dhavale. . and Head of Department Prof. Mrs.Raut. D. M. for providing all facilities to carry out this project work and whose encouraging part has been perpetual source of inspiration. We are thankfull to our Project coordinator Prof. Pathan.H. .and Principal Dr.Mahatme A. B for their encouragement towards our project. We also thank our Electronic and Telecommunication Engineering staff and friends. We were indebted for their constant help, encouragement and without whom this project would not have been success.

V. REFERENCES

[1]. Kumar S., Mahajan R, Kumar N. and Khatri S.K., **"A study on web application security and detecting security vulnerabilities,"** 2017 6th International Conference on Reliability, Infocom Technologies and Optimization (Trends and Future Directions) (ICRITO), Noida, India, 2017, pp. 451-455.

[2]. Sharma R., Pandey N. and Khatri S.K., **"Analysis of IoT security at network layer"**,2017 6th International Conference on Reliability, Infocom Technologies and Optimization (Trends and Future Directions) (ICRITO), Noida, India, 2017, pp. 585-590.

[3]. Mittal N., Tanwar S. and Khatri S.K., **"Identification & enhancement of different skin lesion images by segmentation techniques,"** 2017 6th International Conferenc on Reliability, Infocom Technologies and Optimization (Trends and Future Directions) (ICRITO), Noida, India, 2017, pp. 609-614.

[4]. Pandey P., Jain S. and Khatri S.K., **"Enhancement of medical images using Kalman filter"**,2017 6th International Conference on Reliability, Infocom Technologies and Optimization (Trends and Future Directions) (ICRITO), Noida, India, 2017, pp. 619-623.

[5]. Mittal N., Sehgal A. and Khatri S.K., **"Enhancement of historical documents by image processing techniques"** ,2017 6th International Conference on Reliability, Infocom Technologies and Optimization (Trends and Future Directions) (ICRITO), Noida, India, 2017, pp. 630-635.

[6]. Joshi N., Jain S. and Agarwal A., **"Segmentation based non local means filter for denoising MRI"**, 2017 6th International Conference on Reliability, Infocom Technologies and Optimization (Trends and Future Directions) (ICRITO), Noida, India, 2017, pp. 640-644.