

Sovereign Gardening and Self-Regulated System for Identification of Leaf Spot

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Abstract: — Gardening is the practice of growing and cultivating plants as part of horticulture. For the development of gardening system our project propose the atomization. Here, in this Atomized system the sensor module is used which senses different environmental condition like temperature, humidity, soil moisture content, water level of well etc. and sends the corresponding information to the end system. This system not only displays the information on screen but also sends to the authorized person. After getting acknowledgement from authorized person through wireless protocol the system will start or stop the irrigation system. Sometimes due to change in environmental conditions diseases are occurred. Leaf spot is a common descriptive term applied to a number of diseases affecting the foliage of ornamentals and shade trees. Through image processing technique the system detect and this will help to cure diseases of the plant. Atomized irrigation technology helps to reduce the human efforts and water conservation, increase the quality of plant and also save our time.

Keywords: GSM-Global system for mobile communication, LCD-Liquid crystal detector, TTL-Transistor transistor logic

I. INTRODUCTION

Gardening plays a vital role to make society beautiful. India is developing country so advancement is needed in the field of Gardening or Agriculture to reduce the human efforts and also for conservation of natural resources. Now-a-days labor saving, water saving and the precautions taken before or after the leaf diseases (leaf spot) is the basic issues in gardening or agriculture. To overcome these issues there is no significant technological advancement being made in this field to improve the productivity and overcome the issues the field needs to be monitored on the regular basis which is most difficult and requires a lot of human efforts. Our proposed work is to get proper precautions to overcome the issues with reduced human efforts using automation. Automatic gardening or agriculture system makes human life more convenient. Automated irrigation is a valuable tool for accurate soil moisture control and it is a simple precise method.

In this automated system, we have used different sensors for monitoring various parameters like soil moisture content, temperature, humidity, and water level etc. According to the output from the sensors further controlling action will be done say turning ON or OFF the irrigation system.

Leaf spots are another big issue in the field which needs to be controlled without wasting much time. For detecting the leaf spot image processing technique is implemented. If the

leaf spot is detected then the pesticides will be spread automatically. Our proposed system will be able to communicate with each other through wireless protocol to deliver the real time status of the field and to actuate the water sprinklers during the period of water scarcity and simultaneously the system will be able to display the information on the LCD screen.

Objective

- Leaf spot detection
- Reduces manual interference for watering
- Provision to avoid further leaf spot generated, by spraying pesticides

In our proposed work we are monitoring different environmental conditions by using sensor module for gardening system. The real time status of the field will be send to the authorized person using wireless protocol and according to the acknowledgement from the authorized person we are controlling the irrigation system and also image processing technique is used for detection of leaf spots and the automation is done for the spraying of pesticides with displaying message on the screen.

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II.SYSTEM IMPLEMENTATION

This paper deals with real time automation of agricultural environment for social modernization of Indian agriculture system using 8051 microcontroller, GSM and image processing technique is focused on

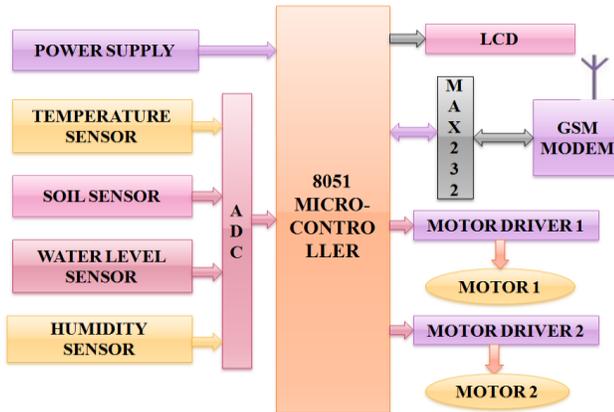


Fig: 1 Block diagram of proposed work

atomizing the irrigation system and detection of leaf spots for the social welfare of Indian agriculture system. The project is implemented by using 8051 microcontroller which is a 8 bit microcontroller.

The microcontroller acts as a major block of the entire work and a power supply block is used for supplying power of 5v to the whole circuit with help of transformer, bridge rectifier circuit and voltage regulator. For monitoring different environmental conditions we use different sensors like soil moisture sensor, humidity sensor temperature sensor and water level sensor. The output of all these sensors is in the analog form and the microcontroller understands only the digital input so the output of these sensors is given to the microcontroller through ADC (Analog to digital converter).

The output of microcontroller is given to the GSM modem through MAX 232. The main function of MAX 232 is to convert the TTL logic level to RS 232 level. Simultaneously the output of microcontroller is displayed on the LCD screen. Through wireless protocol that is GSM the real time status of the field is informed to the authorized person. According to the acknowledgment from that person the irrigation system will turn ON or OFF to actuate the water sprinklers during the period of water scarcity.

The leaf spot is common descriptive term applied to a number of diseases affecting the foliage of ornamentals and shade trees. Through image processing technique the system will detect the leaf spot. According to the detection of leaf spot, the input will given to the microcontroller using parallel port DB25. If the leaf spot is detected then the pesticides will be spread automatically. Simultaneously the message will be displayed on the LCD screen and through wireless protocol the SMS will be send to authorized person. AS the entire irrigation system will be automated it will helps to reduce human efforts and conservation of natural resources.

III. RESULT

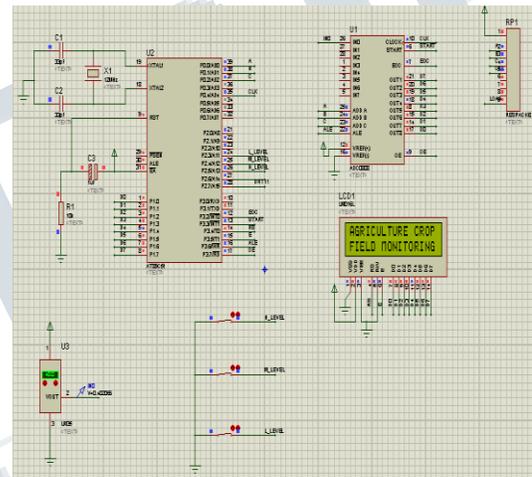


Fig: 2 Software simulation.

Above fig. shows the proteus design of our proposed system which will displays the real time status on the LCD screen.

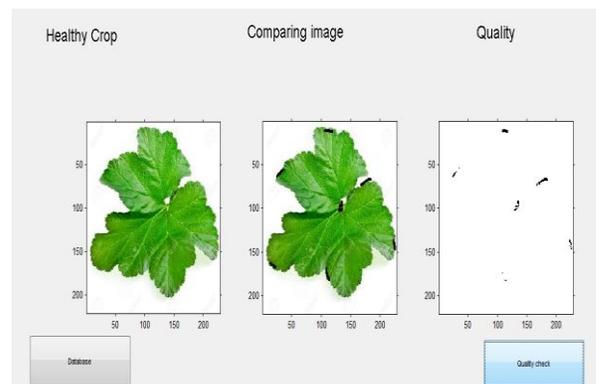


Fig:3 Image Processing.

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IV. CONCLUSION

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V.FUTURE SCOPE

The future scope of this project is enhanced applications with the addition of the required features. one such application is to detect the PH level of the soil and suggesting for the suitable crop which will helpful to increase the productivity. Also we can find the disease spraying of pesticides with displaying message on the screen.of the plant by placing the sensors at roots of the plants and can give suggestions regarding the fertilizers to the farmer.

VI.ACKNOWLEDGEMENT

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