



A Control Device To Keep Track Of Environmental Attributes

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Abstract: Green house atmosphere parameters monitoring system according to wireless communication technologies have been designed to control remotely, which realizes the measurement, summary and charge of temperature, CO₂, humidity, light intensity and yet another parameters. A person can be aware of green house status or control the machine anytime by delivering the instructions with the GSM technology. It's begun with initializing all of the hardware for example analog to digital ripper tools, GSM modem, keyboard, display and interrupts. The remote monitoring and control system for atmosphere parameters in green house according to global system for mobile communications technologies are developed and initially experimented. Her benefits of GSM technology, not requiring cables, low power consumption, low cost, good sturdiness, flexible extension, convenient installing within the traditional measurement and control system. The goal is always to minimize total energy costs and demand charges while considering important parameters of greenhouses particularly, inside temperature and humidity, CO₂ concentration, and lighting levels needs to be stored within acceptable ranges. The automation can be done with simple hardware by utilizing microcontroller where just the controlling can be done but user (player) won't get details about the green house. In cases like this, the wireless sensor network with a lot more software and hardware is really a solution for green house control. Incorporating Fuzzy Logic in armoring at different specifications of ecological parameters in green house for various vegetables cultivation for that complete cycle from germination to harvesting process. Humidity within the eco-friendly house should be controlled to provide a suitable atmosphere for plant growth also to prevent yeast illnesses. The GSM modem is interfaced towards the microcontroller to speak which is done with the aid of UART (universal asynchronous receiver transmitter) serial communication.

Keywords: Greenhouse; GSM; ARM7; Temperature; Humidity; Light Intensity; CO₂; PIR;

I. INTRODUCTION

The applying may have embedded system featuring its ARM7 microcontroller, real-time operating-system, sensors, and GSM modem and control devices to watch the ecological parameters condition namely temperature, humidity, CO₂ concentration and lightweight intensity in green house [1]. Humidity is the amount of water content in atmosphere. The sensor output is a variable current with regards to the level of humidity. Humidity is going to be measured in percentage. The SY-HS-220 humidity sensor can be used which converts relative humidity towards the output current with operating humidity. The monitoring module is going to be placed in the green house. This module will contain a microcontroller (LPC2129) that is designed on ARM7 Architecture. The temperature sensor can give a flexible output current with regards to the temperature variation. LM-35 can be used as temperature sensor. The CO₂ concentration recognition range is 200ppm to 10000ppm. The power of CO₂ can be measured in Parts per million

or %. The PIR (Passive Infra-Red) sensor is really a device that detects motion by calculating alterations in the infrared levels released by surrounding objects. This motion could be detected by looking for a higher signal on one 110 pin [2]. Green house atmosphere parameters monitoring system according to wireless communication technologies have been designed to control remotely, which realizes the measurement, summary and charge of temperature, CO₂, humidity, light intensity and yet another parameters. The PIR used may be the 555-28027 part number. Light sensors aren't anything however the light dependent resistors where the resistance will be different with regards to the light intensity fall onto it. The LCD can be used to show the sensor outputs. The input parameters settings can be created in 2 modes [3]. The machine is implemented with password privilege to safeguard from unauthorized users.

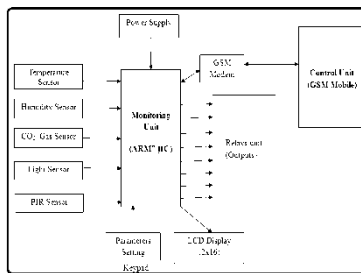


Fig.1.Proposed system architecture

II. METHODOLOGY

This project is made to overcome the above mentioned pointed out disadvantages, using that the ecological parameters in each and every green house could be measured and controlled by microcontroller remotely. A lot of the existing DSM programs in this particular sector are dedicated to energy-efficiency programs in farms to reduce total energy consumption by utilizing more energy-efficient technologies as well as the reduction in energy losses. The development of crop in green house depends upon temperature, CO₂, humidity, light intensity along with other parameters in green house [4]. The automation can be done with simple hardware by utilizing microcontroller where just the controlling can be done but user (player) won't get details about the green house. In cases like this, the wireless sensor network with a lot more software and hardware is really a solution for green house control. Incorporating Fuzzy Logic in armoring at different specifications of ecological parameters in green house for various vegetables cultivation for that complete cycle from germination to harvesting process. You can use it in agriculture vegetable green house to watch and control the ecological parameters to beat the drawback to traditional calculating and controlling [5]. This paper presents one hierarchical control approach and new mathematical optimization kinds of greenhouses, which can be readily built-into energy hub management systems poor smart grids to optimize the operation of their energy systems. The recommended models might be readily built-into energy management systems (EMS) and implemented just like a supervisory real-time control in existing eco-friendly house controllers, thus empowering greenhouses to effectively manage their overall energy demand, production, and storage in tangible-time. Greenhouses will frequently have weather stations that provide exterior and internal information on temperature, relative humidity, radiation, and wind speed to be used for real-time cooling and heating. The recommended framework maintains the eco-friendly house climate within proper conditions to give the best plant growth, and controls important parameters for instance eco-friendly house temperature, relative humidity, lighting levels, and

CO₂ concentrations while reducing total energy costs. . Thus, optimization models were formulated to optimally operate extra lighting, CO₂ generation, ventilation and ventilation, and air conditioning systems in existing greenhouses control systems. The developed models incorporated weather forecasts, electricity cost information, as well as the finish-user preferences to lessen total energy costs and peak demand charges while considering important parameters of greenhouses cooling and heating [6]. Optimal operational decisions and resulting trajectories generated with the recommended model for just about any winter day are presented. Adopting touch screen based Human Machine Interface to watch and control.

III. CONCLUSION

This embedded application is implemented and tested because of its correct functionality. The experimental results reveal that the developed monitoring system has got the following features, for example simple structure, high reliability, good extensibility and versatile configuration. This project is made to overcome the above mentioned pointed out disadvantages, using that the ecological parameters in each and every green house could be measured and controlled by microcontroller remotely. For just about any winter day, the peak demand cannot be significantly reduced due to the need to operate the additional lighting system however, the model reduces total costs by operating the devices during lower energy cost periods, For wind speed, random values are generated employing a Weibull distribution while using scale and shape parameters acquired from actual hourly data for each season for Ontario. A legitimate Sim is going to be placed in to the modem to allow wireless communication. The GSM module functionality is really the microcontroller enables the GSM module to transmit the content towards the configured mobile and the other way around.

IV. REFERENCES

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