

# GPRS based Automatic Wireless Monitoring and Control System for Green House

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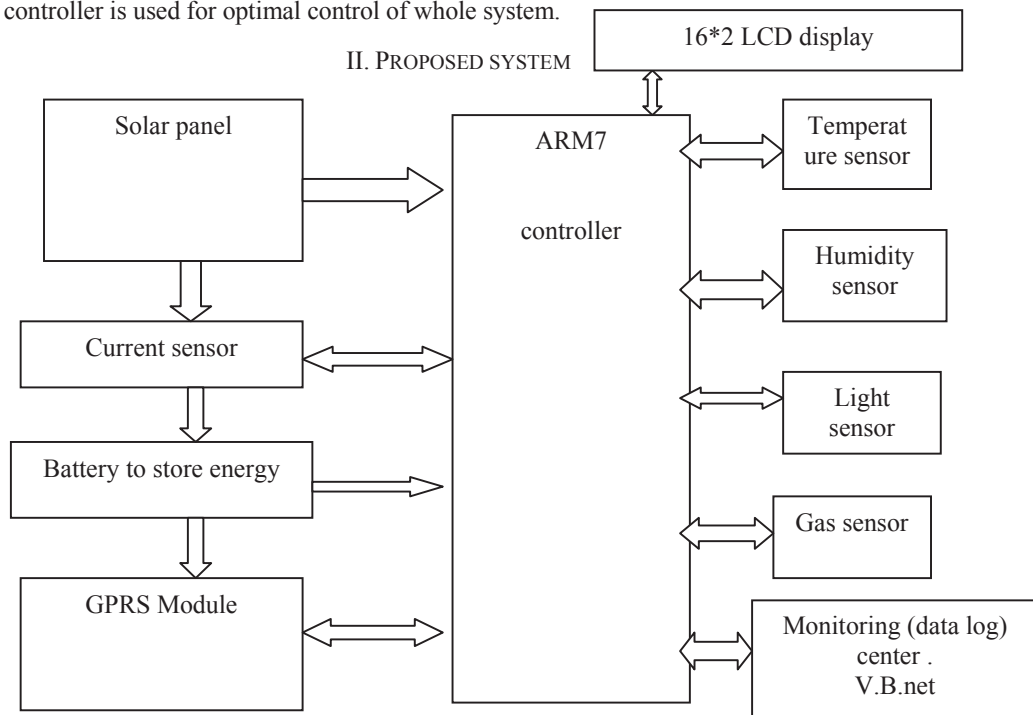
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**Abstract-** The paper discussed data acquisition of ARM7 i.e. LPC2148 controller and principle of serial communication to monitor and control various environmental parameters for green house such as temperature, moisture, light and gas which are sensed by various sensors .LPC2148 Controller chip makes the system highly energy conservative and GPRS wireless module makes real time and reliable transfer of data .Communication protocol used is RS 485.Design scheme is simple yet reliable and gives stable performance.It also keeps log of above data and provides scope for future upgradation.

**Keywords –** GPRS ,ARM7, Data Acquisition.

## I. INTRODUCTION

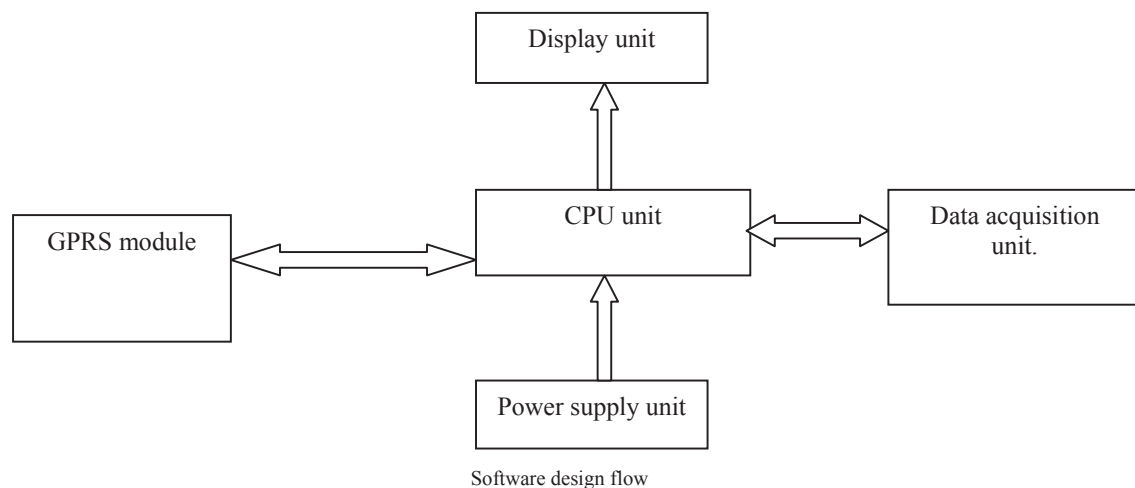
In green house system the provision of monitoring and control of optimal indoor growing environment is required.The green house structure represents both the barrier o contact to external environment and containment of internal environmental controlled.The environmental control system has to continually work and modify the environment to optimize crop performance in response.Green houses are located mostly at remote locations where extension of power grid is not possible .Therefore stored solar power energy is used to provide electricity to whole system. Proposed system solves problem of monitoring and control of environmental parameters using different sensors .ARM7 controller is used for optimal control of whole system.



In the above system solar panel collects solar energy .That energy is stored in the form of electricity in battery.ARM7 controller is interfaced with different sensors. It collects information like ambient temperature, humidity, light intensity and gas via sensors. These data log is maintained and information is stored in computer .These data is monitored and controlled. Control can be achieved using relays .e.g. A .Relay can be activated when temperature is increased ,The relay can be used to activate fan to reduce temperature till desired level. GPRS wireless communication module is used to transfer real time data to monitoring center. Visual basic software is used in the system.

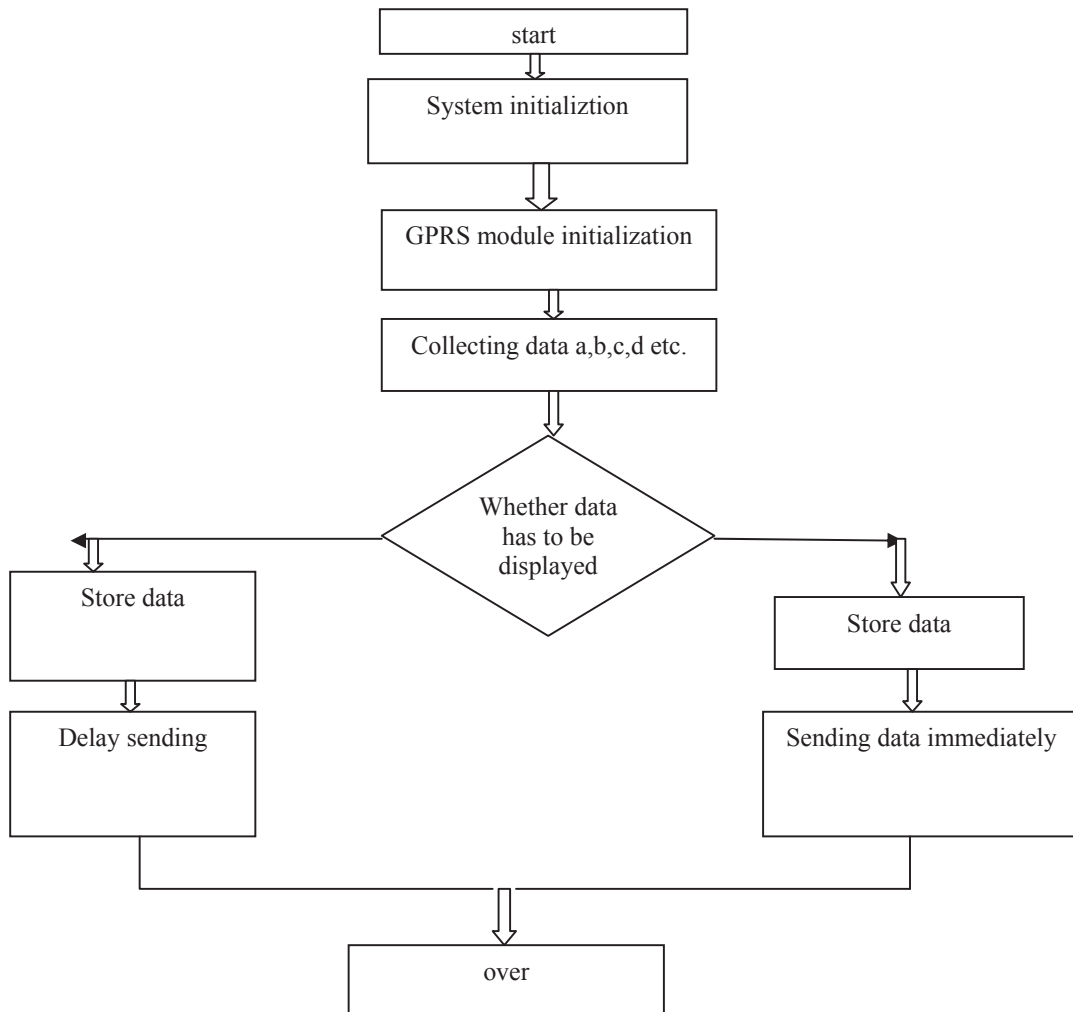
*Hardware and software used.*

Monitoring system has data collecting module ARM7TDMI core controller is 32 bit controller having gaussian flash memory.It has features like real time simulation and tracking.Sensors used are temperature sensor ,gas sensor,LCD display unit is used to display data sensed by sensors.System has GPS wireless communication module SIM900 which has high performance,high reliability and strong anti-interface characteristics.It has TCP –IP protocol to facilitate network management.

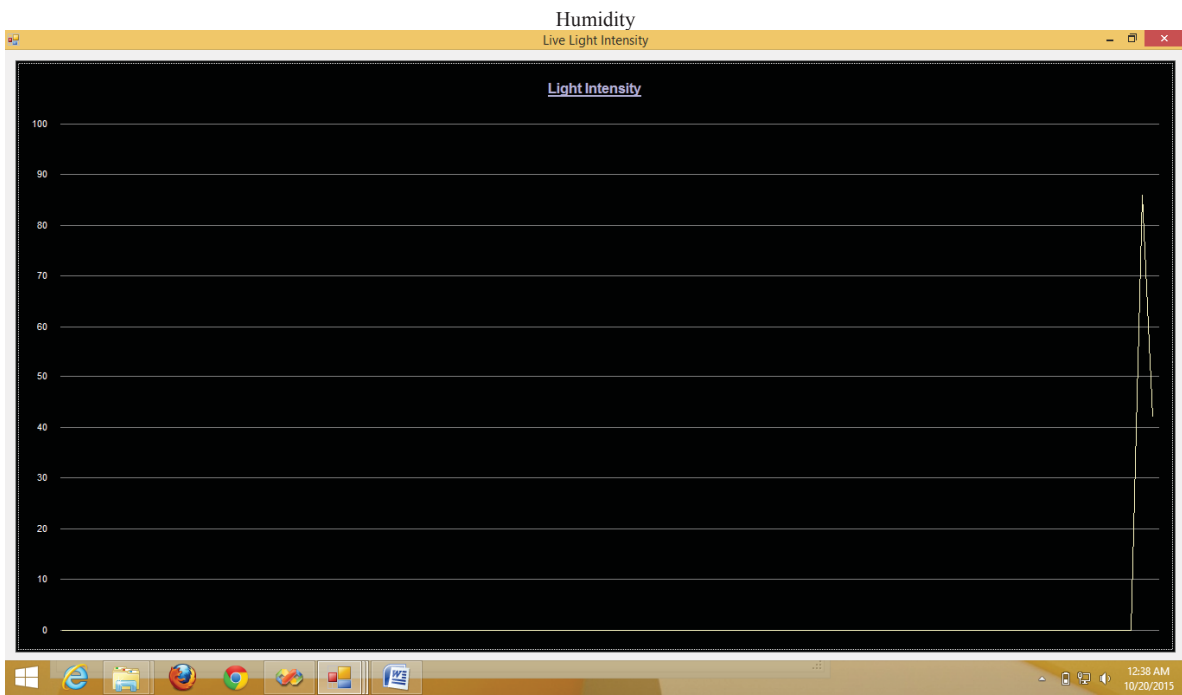
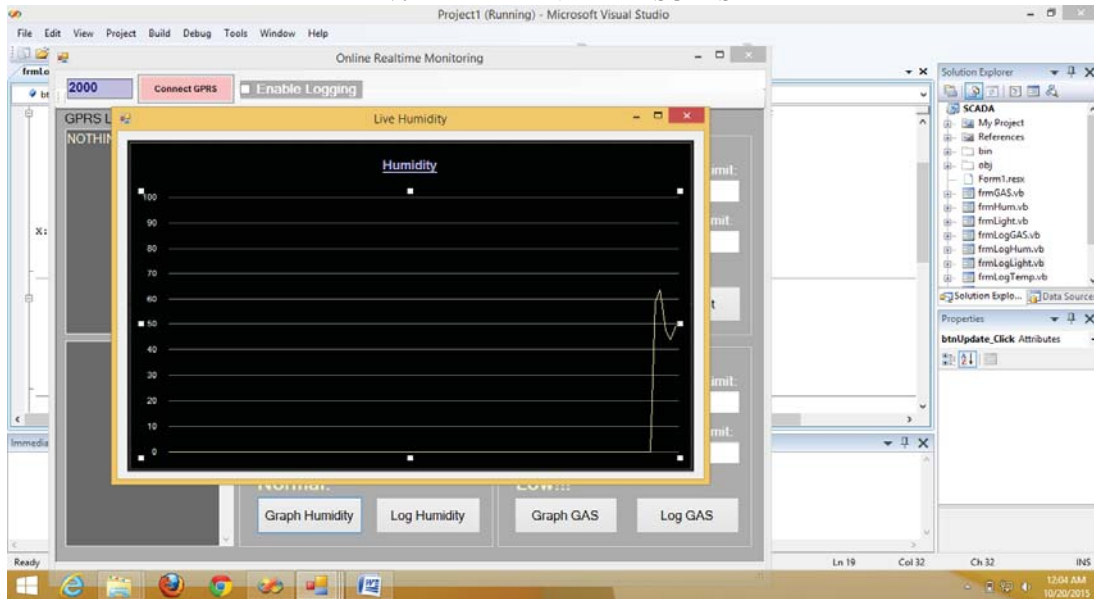


Command word data is sent by ARM7controller module to data acquisition system.In accordance with agreed protocol,main communication control module receives data.

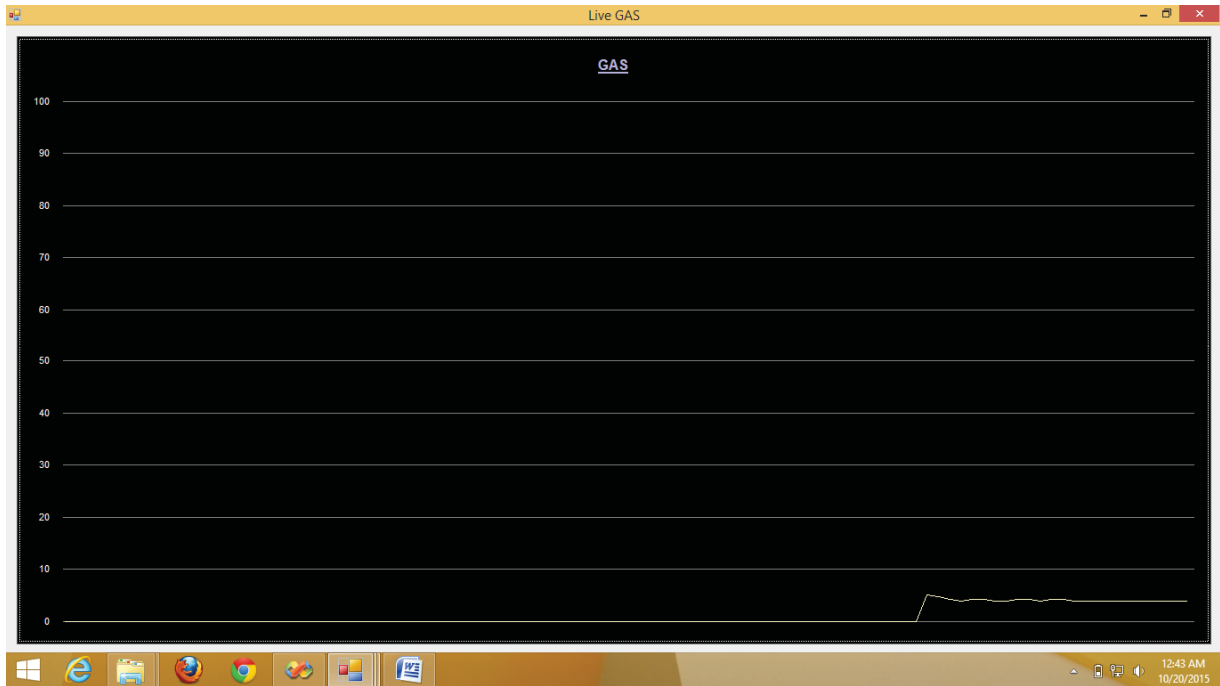
The flow diagram for the system is as follows.



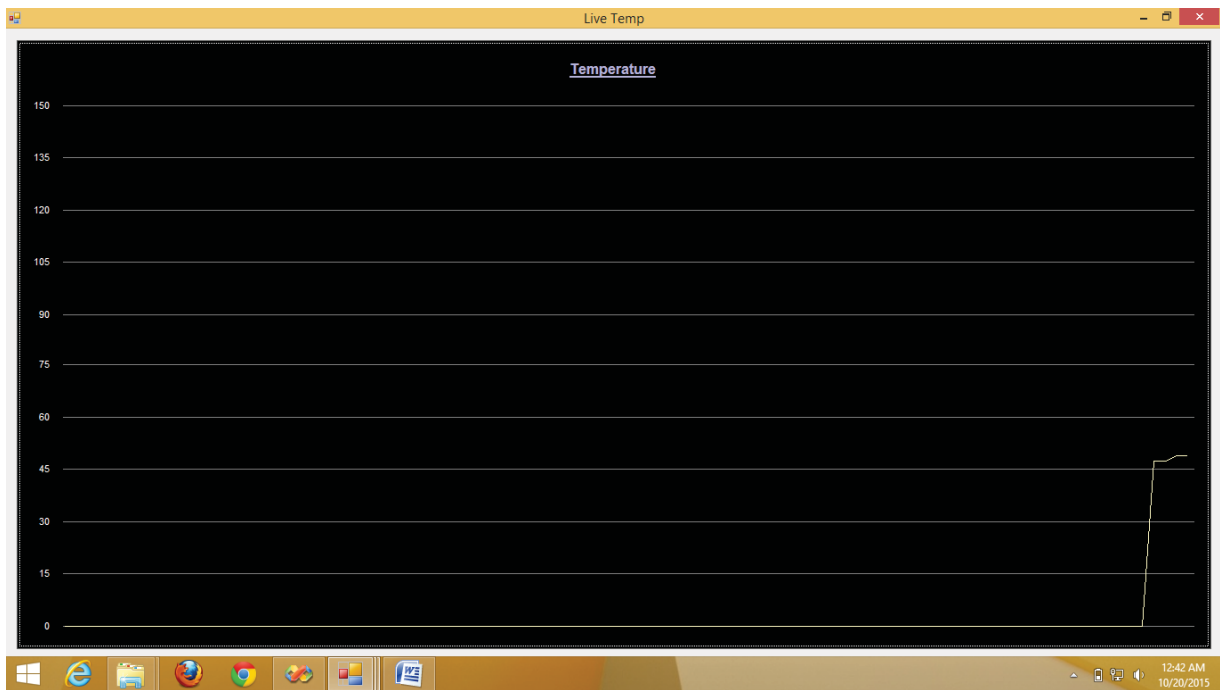
#### IV. EXPERIMENTAL RESULTS



Light intensity



Gas in atmosphere



Temperautre variations.

Above graphical representation shows various graphs showing live variations in environmental parameters like temperature, moisture, gas and light intensity. The log of data is maintained and its record is kept at data log of monitoring and control center.

#### IV. CONCLUSION

Solar power wireless monitoring system has several modules to make sure system performance is stable and operation is reliable. It also provides fast measure to data communication for upgradation of system. It ensures high accuracy of data transmission. GPRS communication system applied to ARM7 controller enables fast and accurate transmission of data and also achieves unmanned watching.

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