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Energy Measurement in Automated Solar Powered Irrigation System

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Abstract:
This projected population of India being 1500 million by 2050 and Agriculture remaining as te primary source of livelihood in rural areas the focus should be on the increase of productivity. Though our country claims to have developed interns of science and technology, erratic power supply or complete break down for hours together has almost became routine together. solar power is being increasingly utilized worldwide as a renewable source of energy.india has huge untapped solar off-grid opurtunities.This paper gives information about development procedure of an embedded system for off-grid irrigation system. The user can water the fields from any place using GSM technique which provides an acknowledgement message about the job status. The main objective of this is optimizing the power usage through water resource management and also saving government free subsidiary electricity. This proves an economy way of irrigation and this will automate the agriculture sector.

Keywords: agriculture, solar energy, agriculture, GSM, electricity, Irrigation

I. INTRODUCTION

For continuously increasing demand of food necessities, it's important to rapid improvement in production of food technology. Agriculture in only the source to provide this. This is the important factor in human societies to growing and dynamic demand in food production. Agriculture plays an important role in economy and development. Agriculture plays the important role in the economy and development, like India. Due to lack of water and scarcity of land water result the decreasing volume of water on earth, the Farmer use irrigation. Irrigation may be defined as the science of artificial application of water to the land or soil that means depending on the soil type, plant are to be provided with water. In agriculture, there is two things is very important, first to get information of about fertility of soil and second is to measure moisture content in soil. Nowadays for irrigation different Techniques are available which is used to reduce the dependency of rain. And mostly this technique is driven by electrical power and on/off scheduling controlled. There is also more technique available which is based on climate data which is irrigated with smart controller and using microclimate data to schedule irrigation water also irrigation is real time application. These technique, irrigate using following technique.

1. GSM-SMS protocols using GSM module individually or in combination with Internet Technologies.
2. Monitoring using Wireless Sensor Networks. .

II.LITERATURE SURVEY

Pavithra D.S,M.S.Srinath proposed GSM based automatic irrigation control system for efficient use of resources and crop planning by using an android mobile in this proposed system they have used normal microcontroller so the data memeory will be less and clock speed also is less and also and also will have more usage of electricity[1]. E.R. Sukhjith singhnad E.R. Neha Sharma Proposed drip irrigation management using Wireless sensors in this proposed system they are Using electricity and there are no updates about the status [2]. S.V. devika, SK. Kamurudden proposed the system called arduino based automatic plant watering system this system is used for green plant care it's for to make gardener work easily this project uses ardino board which consists of ATmega328 microcontroller in this system there is only about watering plants[3]. Zhio Li Ming and liu hi ping proposed the system proposed the system of water saving irrigation based on WSN and MSIF in this wsn is wireless sensors networks and msif is multi source information fusion technology. in this SN adopts nRF2401 as transfer module, collecting and fusion multi source information and also adopted the solar batteries[4]. Venkata naga rohith proposed micro controller based automatic plant irrigation system in this system they provide automatic irrigation for plants this entire system is controlled using 8051 microcontroller and also connected humidity and temperature sensors to the microcontroller. The change in temperature humidity makes the sprinkler to sprinkle. They can use advanced microcontroller [5]. Prathik A.patil and sangram V. bosile propose the system of prototype for automatically navigated water irrigation system. They presented automatic controlling of irrigation water along with water navigation nad also send sms to the registered mobile phone in this they can use solar energy and also other sensors[6]

III.METHODOLOGY

This project objective is to supply water for the fields in alternative way by generating electricity (through solar panels) in order to save 22% of the total power production in INDIA. Here, we introduce an advanced technique of control through GSM module. The components required for the project is solar panel, battery, relay, dc pump, GSM module, microcontroller, water tank. When the sunlight falls on the solar panel, it liberates the electrons within the material which then move to produce a DC current. This dc power is stored in the battery so that the pump can operate even in the night time by discharging the battery. The other end of the battery is connected to the relay and relay is connected to DC PUMP. A

water tank is present in order to store the water for watering the fields. Water tank sensors in order to sense the level of water in the tank and send it to PIC micro-controller (16F877A) and water tank is also having valve and this valve action is controlled by small servo motor. The GSM module is used which is a hardware component that allows the capability to send and receive SMS to and from the system. If the user (farmer) sends the text message via mobile phone as on it checks the level of tank and depending on the level of tank the operations takes place. We can know the level of water with the help of level sensors. If the task is completed then the GSM module sends the simple message as Humidity, temperature, water level, PH value of the field. The level sensor sense the level of water in tank and send it to the micro controller. This paper gives information related to OFF grid application system, which is independent of supply from the grid. The source to generate electricity through renewable resources, we prefer sunlight as the main source. The objective is to supply water for the fields through solar powered water pump and automate the system for better management of resources. The farmer (user) can water the fields from any place using GSM technique which provides an acknowledgement message about the situation

IV.RESULTS AND DISCUSSION

This system is used for several domestic and large industries like Agriculture applications, Remote control industries, Agricultural fields, Agriculture research stations, Cultivations Nursery plants in this system the humidity, temperature ,water level and ph level in the soil will be calculated and if it reaches the optimum level the GSM sends sms to the registered mobile number

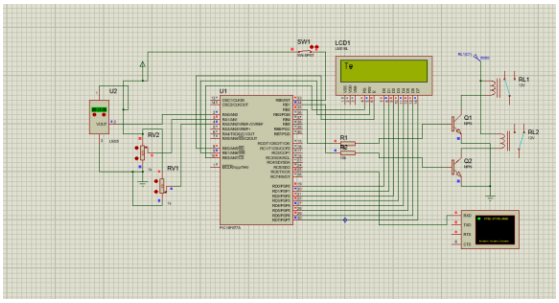

Figure .1. Proteus circuit of the proposed method

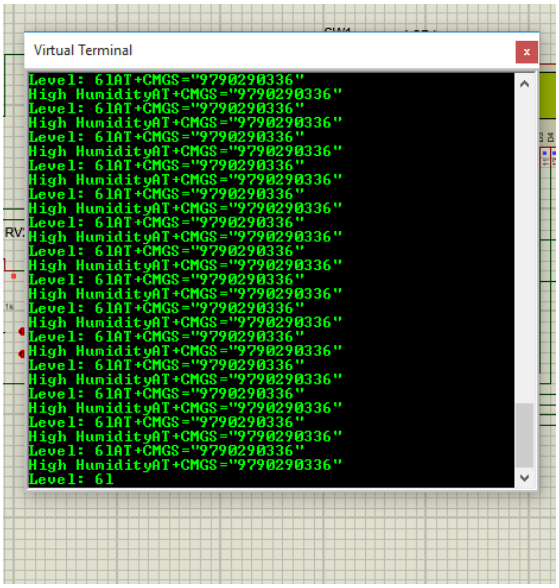

Figure .2. Output screenshot

V. REFERENCES

[1]. Pavithra D.S.,M.S. Srinath "GSM based automatic irrigation control system for efficient use of resources and crop planning by using an android mobile", *IOSR journal of mechanical and civil engineering "*

[2]. Er.Sukjith singhand Er.Neha Sharma "drip irrigation management using wireless sensors "*Internation journal of comuter networks and wireless communication "*

[3]. SV.devika and SK.kamurudden" aurdino based automatic plant watering system" *International journal of advanced research in computer science and software engineering "*

[4]. Zhao li ming andleo hi ping "The system of water saving irrigation based on WSN and MSIF" *International journal of computer science issues "*

[5]. Venkata naga rohith Gunturi "microcontroller based automatic plant irrigation system " *International journal of advancements and research and technology"*

[6]. Sanjay Kumawat," Sensor based Automatic Irrigation system and soil pH detection using Image Processing", *International Research Journal of Engineering and Technology*"2017

[7]. Bishnu Deo Kumar," Microcontroller based Automatic Plant Irrigation System, *"International Research Journal of Engineering and Technology"*2017

[8]. Gaddipathi Bharthi," Automatic Irrigation system for smart city using PLC and SCAD,*" International Journal of Scientific Research in computer Science Engineering and Informaion Technology"*, 2017

[9]. Diksha S.Dasare," Automatic Irrigation Control System", International journal for technical research in engineering", 2017