Mechanical Automation of Public Garden Based on Solar Panel System

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Abstract- **Internal of things is a bridge between human & devices. In this paper automation of watering to cops & water tank has to be implemented. In this world automated technology takes place everywhere. For the aspect of making all system better, this system is designed for garden maintenance. Nowadays misusage of electricity & water resources is a main problem. Sometimes due to carelessness of authorities, lamps are left ON which causes wastage electricity. Water wastage is another problem. To overcome this problem, our project helps to save electricity & water resources. Firstly microcontroller switches around 4:00pm, doing water supply to drinking water the gardens few hours before opening of garden for public. The garden gate is opened by running the motor unit which is driven by motor driver. Around 6:00pm, Lights are switches on depending on the output of LDR. Garden stays open for approximately 3 hours & by 8:40pm buzzer is sounded to point closing of garden alert to visitors. The garden gate is closed at 9:00 & one of the two lamps is switches off. In morning all lamps are off depend on LDR result. Microcontroller is employed to control all actions of other devices.**

Keywords- **Gear, Gear testers, Accuracy, Automation, Efficiency.**

I. INTRODUCTION

As per the present world of engineering, this paper aims into practice of the overall automation of general public garden using Microcontroller ATMEGA 32. The project will help to avoid the mistreatment of electricity and normal water in the public garden. Sometimes due to negligence of the authorities and the personal lights were left on which results in wastage of electricity. Water wastage is yet another problem which needs to deal with.

Humidity sensor is employed to measure the humidity but it will surely give the voltage outputs which is applied to signal and health circuit and then applied to the microcontroller. All of us are using humidity sensor which will measure the water content in the soil and water resource time will be tweaked accordingly water content in the soil. This will avoid unnecessary hydrant during the rainy season.

The gates of the garden are also opened and closed according to preened timings. The gate will be opened by motor unit which is manipulated by the microcontroller. Lights will be switched on depending after the intensity of the natural light and the lights remain functionally right up until your garden remains wide open. The garden will be closed at around on the lookout for 09:00 p.m. For around 08:50 p.m private message at buzzer will show closure of your garden and alert the site visitors.

The gate will be then closed on the lookout for 09:00 p.m and lamp will be switched except a few. Microcontroller can be used to control entire functionality.

II. LITERATURE REVIEW

Automation is done for convenience of authors. When developing a garden automation it is significant to give automatic switches on and off

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lamps. A public garden automation can be constructed from different approaches including modifying irrigation or adding some more sensors such as humidity sensors, fire sensors results in smart automation.

Making a garden automation with the help of motor driver results in opening and closing of garden gate. Some smart automation garden designs favor sensor placement of understanding sensor used in automation system. Newer development in sensor technology can help to neglect sensor placement on platform. Many automation systems use a solar panel, real time clock, fire sensor for more convenience.

Goran Kitić and Vesna Crnojević-Bengin, A Sensor for the Measurement of the Moisture f Undisturbed Soil Samples, ‖ Sensors 2013 et al The main aim of this paper is to illustrate the technology that can be used for automation of gardens. The most important problems faced are the misusage of electricity and its wastage.

Sometimes due to carelessness of the authorities and the workers lamps are left ON which results in wastage of electricity. Water wastage is another problem which needs to be dealt with. Our project helps to overcome all these problems.

P. Parwekar (2011). From Internet of Things towards cloud of things. In Computer and Communication Technology (ICCCT), 2011 2nd International Conference on, pages 329–IEEE, 2011et al The Garden Sensors gather and analyze data about changing weather and soil moisture conditions and then connects to the user's Android phone with timely alerts.

Also, the system includes a .Net Application which runs on a Microsoft Windows Computer which can be used to monitor the plant's conditions at user's workplace.

1. Rajeev Piyare Internet of Things:
Ubiquitous Home Control and Monitoring System using Android based Smart Phone, International Journal of Internet of Things 2013, 2(1): 5-11. Et at The system used Android application is used to control and monitor the appliances and Wi-Fi technology as a communication protocol to connect system components. Depending upon the moisture

level of garden land and daylight intensity, the system can detect the appropriate time of water supply to the plants and trees in the garden.

Deepak Mehetre Deepak Mehetre, An Automatic Irrigation System using Zig Bee in Wireless Sensor Network, ‖ 2015 International Conference on Pervasive Computing (ICPC) .et al the Water Valve automatically controls the existing water system based on data collected by the Garden Sensor and adapts to every change in the plant's requirements. This saves water, lowers utility bills, and the user needs never to worry about thirsty plants again.

III. METHODOLOGY

1. Humidity Sensor:
This sensor is used to measure the humidity and it will give the voltage outputs which will be applied to signal conditioning circuit and then applied to the microcontroller.

2. Light Sensor:
This is second sensor which is use to sense light. This can be LDR. Output of sensor given to signal conditioning circuit which will raise signal to required level of microcontroller.

3. Motor Driver:
We need to drive the DC Motors. For this purpose we need to provide 12volt supply to motor. Motor driver is also used for this purpose.

4. Micro-Controller ATMEGA32:
This is the main segment of the paper. The microcontroller is in charge of detection and polling of the peripherals position. It is making. It is in charge of putting first all the devices fastened to it. We have used the P89V51RD2.

5. RTC:
The serial real-time clock (RTC) is a low-power, full binary-code decimal (BCD) clock/calendar plus 56 bytes of NVSRAM. Address and data are transferred serially through an IC, bidirectional bus. The clock/calendar provides seconds, minutes, hours, day, date, month, and season information. The end of the month date is automatically adjusted with fewer than thirty - one days, including corrections for leap year. The time operates in either the 24-houror 12-hour format with AM/PM indicator RTC has a built-in power-sense circuit that detects electricity

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failures and automatically changes to the backup resource. Time keeping procedure continues event through the part operates from the backup supply.
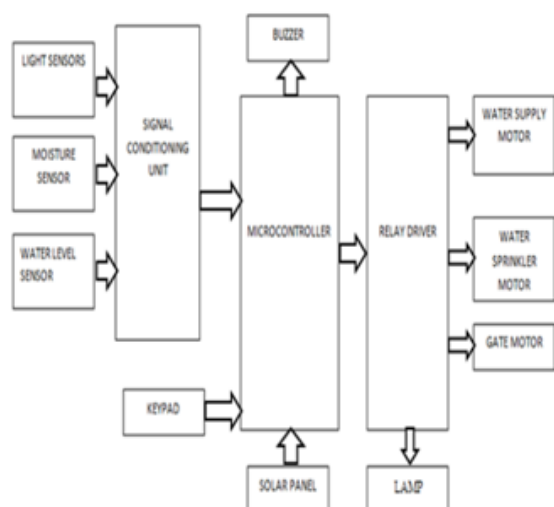

Fig 1. Schematic Layout of scheme.

IV. CONCLUSIONS

This project elaborates the design of public garden automation based on solar power with microcontroller ATMEGA. The circuit works properly as the command given by user.

After designing the circuit, automatically water supply given to plants, and lamps are switched on off based on light intensity as well as opening and closure of garden gate.

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