PUBLIC GARDEN AUTOMATION USING GSM TECHNOLOGY

1Mr. Mahadev Vilas, 2Mr. Mahanavar Sagar, 3Mr. Ingale Gaurav, 4Prof. Gawali D.S.

1,2,3Research Scholars, 4Assistant Professor
Department of Electronics and Telecommunication
SVPM’s College of Engineering
Malegaon (Bk), Tal-Baramati, Dist-Pune, Savitribai Phule Pune University.

Abstract—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. Firstly the Microcontroller around 4.00pm switches on the water supply once to water the entire garden few hours before opening of the garden for public. Next the gate is opened by running the motor which is driven by a motor driver operated by the Microcontroller. At around 6.00pm the lights are switched on depending upon the output of the LDR and the lights remain functional till the garden remains open for visitors. The garden remains open for about three hours and so around 8.50 pm a buzzer is sounded to indicate closure of the garden and alert the visitors. The gate is then closed at 9.00pm and one of the two lamps is switched off. One lamp is kept on throughout the night. In the morning the remaining lamp is switched off depending upon the signal sent by the LDR, light dependent resistor to the Microcontroller. These are the step involved in the operation of the circuit and the public garden automation. Microcontroller is used to supervise the actions of all other devices and to control the entire set of operations.

Keywords—Microcontroller , DC Motor , LCD , Relay , Buzzer , DC motor driver, Light sensor ,Water level indicator,GSM module ,RS 232 ,Fire sensor.

I. INTRODUCTION

This project aims to implement the total automation of public garden. The project will help to avoid the misuse of electricity and water in the public garden. Sometimes due to carelessness of the authorities and the workers lights were left ON which results in wastage of electricity. Water wastage is another problem which needs to be dealt with. We are using humidity sensor which will measure the water content in the soil and water supply time will be adjusted accordingly water content in the soil. This will avoid unnecessary water supply during the rainy season.

The gates of the garden are also opened and closed according to predefined timings. The gate will be opened by motor which is controlled by the Microcontroller. Lights will be switched on/off depending upon the intensity of natural light and the lights remain functional till the garden remains open.

The Garden will be closed at around 9.00 p.m. At around 8.50 pm a buzzer will indicate closure of the garden and alert the visitors. The gate will be then closed at 9.00pm and lamps will be switched off except one or two. Microcontroller is used to control entire functionality.

II. PROBLEM DEFINATION

The most important problems faced are the misusage of electricity and its wastage. Sometimes due to carelessness of the authorities and the workers lamps 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.

In this project, we are using the GSM to control the overall system. We can avoid the wastage of water by using the water sprinkler. Also the wastage of electricity can also be avoided by using the light sensor. We are using the fire sensor for protection purpose. Also to avoid the wastage of water from tank by using water level indicator. After filling the tank the motors will be automatically stopped.
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.

Light Sensor:
This is second sensor which is used to sense light.

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

Relay:
We need to control the values of temperature. For this purpose we need to drive a fan and heater. We are going to use Relay for this purpose.

Arm7:
This is the most important segment of the project. This is used controller for the system.

Buzzer:
A buzzer or beeper is an audio signaling device, which may be mechanical, electromechanical, or piezoelectric. Typical uses of buzzers and beepers include alarm devices, timers and confirmation of user input such as a mouse click or keystroke.
Dc Motor:
A DC motor is any of a class of electrical machines that converts direct current electrical power into mechanical power. The most common types rely on the forces produced by magnetic fields. Nearly all types of DC motors have some internal mechanism, either electromechanical or electronic; to periodically change the direction of current flow in part of the motor. Most types produce rotary motion; a linear motor directly produces force and motion in a straight line.

GSM:
GSM module is used to communicate with mobile. We send the message from processor to mobile by using this GSM module.

V. ALGORITHM:

Step 1: Lamp
Step 1.1: Initially check whether it is day or night.
Step 1.2: If it is day
   Then lamp is OFF
   Else
   Lamp is ON
Step 2: Gate
Step 2.1: Initially check the RTC.
Step 2.2: check vehicle point is near to gate Then gate will be automatically open
   Otherwise it remains in continuous state.
Step 3: water tank level
Step 3.1: check water tank level.
Step 3.2: if it is low then pump is ON
   Else
   Pump is OFF
Step 4: Moisture
Step 4.1: check moisture initially.
Step 4.2: check water level in moisture.
Step 4.3: If it is low
   Then sprinckle is ON
   Else
   Sprinkle is OFF.

VI. EASE OF USE:

- This small scale project can be implemented in any public garden with minimum cost and resources.
- This helps in proper utilization of the available resources and helps in avoiding wastage of electricity and water.
- College garden automatically controlled.
- Public garden.
- In restaurant garden.

VII. CONCLUSION:

The project we have undertaken has helped us gain a better perspective on various aspects related to our course of study as well as practical knowledge of electronic and electrical equipment and communication. We became familiar with software analysis, designing, implementation, testing and maintenance concerned with our project. An advantage of this system is very simple, more competent and low cost. Using this system the farmers can be able to utilize the available resources efficiently without wasting of resources. This system gives the accurate condition as per the requirement of authorities of garden.

The user can also feed the input by GSM and on that basis; particular condition will turn on for defined time period. This system can be implemented for any field like home garden automation, In restaurant, public garden and college garden etc.

REFERENCES