



Advanced Time Based System for Public Garden

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ABSTRACT

The most important problems faced are the misuse 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 three of the four lamps are switched off. One lamp is kept on throughout the night. In the morning the remaining lamp is switched off as depending upon the signal sent by the light dependent resistor to the Microcontroller. These are the steps 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.

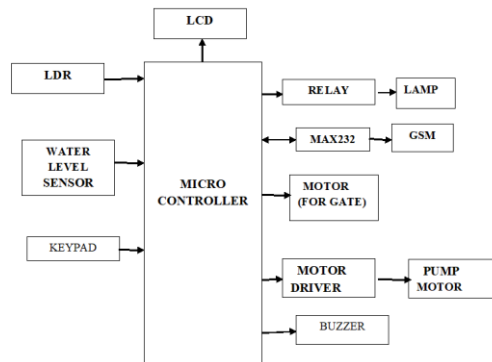
Keywords: Project, Time Based System, Microcontroller.

1. Introduction

In today's life, everyone gives importance to time. Time does not wait for anybody. Everything should be performed in time. In world, the gardens & park plays very important role in the cities and development of the country. We are experiencing a modern park using the latest technologies. The continuous increase in population of India there is no place to relax naturally. So peoples are try to self- relaxing in some another place naturally and safely in city places. The Public Park and gardens are the targets for the peoples to spent more time in silent places and fresh airs. The modern public garden is automated and time based project which reduce the manpower and utilize unrestricted areas. In this garden fully automated like time based park opens and closed automatically in particular time manner. The parks are opened mostly in morning 4 to 8am and evening again 4 to 9 pm as a working times. The people are mostly coming for walking purpose or playing some games or coming for take fresh air.

Around 4.00pm switches on the water supply once to water the entire garden few hours before opening of the garden for public. This will reduce the wastage of water supply and save more power and water. 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.

2. Block Diagram



3. Proposed System

In proposed system there is real time clock is used for process the sequences. As per time order all process in sequence manner and saves the power without man power utilization and money saving. In automatic process there is man is involved for supervising purpose only because sensors are did their jobs perfectly so the manual reduced mostly and saves water source, power utilization and salary of labour.

PIC16F877A

The 16F877A is a capable microcontroller that can do many tasks because it has a large enough programming memory (large in terms of sensor and control projects) 8k words and 368 Bytes of RAM. This is enough to do many different projects. The 40 pins make it easier to use the peripherals as the functions are spread out over the pins. This makes it easier to decide what external devices to attach without worrying too much if there are enough pins to do the job. One of the main advantages is that each pin is only shared between two or three functions so its easier to decide what the pin function.

LDR

This is a light dependent resistor (LDR), suitable for use in projects which require a device or circuit to be automatically switched on or off in darkness or light. As the amount of light falling on this LDR increases, its resistance decreases. The light detector itself is just 12mm in diameter with a lens and epoxy sealed metal package. It is the hermetically sealed type light dependent resistor (photoconductive cell) which has similar sensitive wavelength to the visible spectrum. An LDR (Light dependent resistor), as its name suggests, offers resistance in response to the ambient light. The resistance decreases as the intensity of incident light increases, and vice versa. In the absence of light, LDR exhibits a resistance of the order of mega-ohms which decreases to a few hundred ohms in the presence of light. It can act as a sensor, since a varying voltage drop can be obtained in accordance with the varying light.



KEYPAD

A miniature keyboard or set of buttons for operating a portable electronic device, telephone, or other equipment it is also possible to use numerous additional modules linked to the development system through the I/O port connectors. Some of these additional modules can operate as stand-alone devices without being connected to the microcontroller. A keypad is a set of buttons arranged in a block or pad for a specific task. It contains 5 keys arranged in matrix format. The pulses from the microcontroller are used for switching keys in a keypad. In order the keypad to work properly, pull-down resistors should be placed on the microcontroller's input pins, thus defining logic state when no button is pressed. By combining zeros and ones on the output pins, it is determined which button is pressed. It does not require separate power supply for switching. The keypad may be used for a multi input switching.



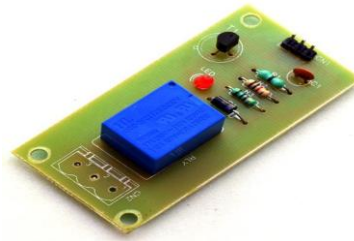
GSM

This GSM Modem can accept any GSM network act as SIM card and just like a mobile phone with its own unique phone number. Advantage of using this modem will be that you can use its RS232 port to communicate and develop embedded applications. The SIM900A is a complete Dual-band GSM/GPRS solution in a SMT module featuring an industry-standard interface; the SIM800 delivers GSM/GPRS 900/1800MHz performance for voice, SMS, Data, and Fax in a small form factor and with low power consumption. With a tiny configuration of 24mm x 24mm x 3 mm, SIM800 can fit almost all the space requirements in your applications, especially for slim and compact demand of design.



RELAY

A relay is an electromechanical switch which is activated by an electric current. A single relay board arrangement contains driver circuit, power supply circuit and isolation circuit. A relay is assembled with that circuit. The driver circuit contains transistors for switching operations. The transistor is used for switching the relay. An isolation circuit prevents reverse voltage from the relay which protects the controller and transistor from damage. The input pulse for switching the transistor is given from the microcontroller unit. It is used for switching of a single device.



WATER PUMP MOTOR

A pump motor is a DC motor device that moves fluids. A DC motor converts direct current electrical power into mechanical power. DC or direct current motor works on the principle, when a current carrying conductor is placed in a magnetic field, it experiences a torque and has a tendency to move. This is known as motoring action. Pumps operate by some mechanism (typically reciprocating or rotary), and consume energy to perform mechanical work by moving the fluid. Pumps operate via many energy sources, including manual operation, electricity, engines, or wind power, come in many sizes, from microscopic for use in medical applications to large industrial pumps.



4. Conclusion

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.

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