Design of Automated Supervisory System for Public Gardens

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Abstract:

The automation, being the first option for most of the world real time scenario, has found its applications in wide variety of human daily life systems. If automation in environmental scenarios isconsidered equally to that of daily life systems, then a wide variety of advantages can be seen. Such environmental scenario is public garden, where most of the time electricity and water is not being utilized properly, resulting in wastage of water and electricity at most times. The automated supervisory system for public garden finds its application in such scenario. This system automates the process of lighting;watering and garden timing's finding the advantage of utilizing water and electricity properly.

Introduction:

The public garden is one among the place where people spend a part of their daily time to get relax. It is always best to have good environment in public garden with respect to nature like greenery and lighting. This is possible only through proper watering of plants and lighting.

The supervisors of such places give their best in order to maintain it. But at the end a manual process sometimes may fail to maintain their potential for maintaining garden. Due to which they may sometime over/under water the plants or sometime they may forget to switch on/off lights of garden. Along with the task comes of intimating the people about the garden times.

The automated supervisory system for public garden finds the solution to all this above stated statements. It may help in automating watering and lighting of garden and also intimating the visitors about garden timing. There-by reducing the wastage of electricity and water.
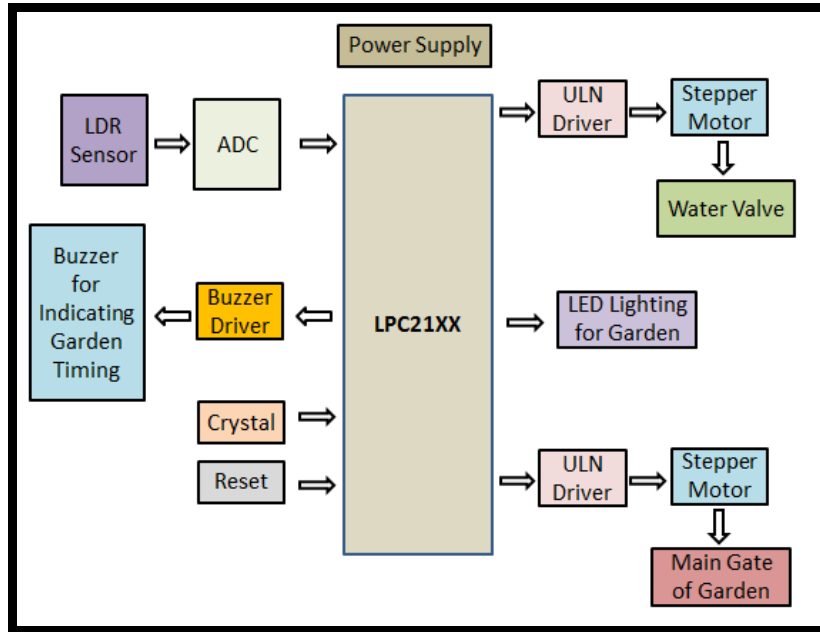
Figure 1: Block diagram of Automated Supervisory System for Public Gardens

As shown in Figure 1, it consists of a microcontroller LPC21XX for helping in automation of entire process. The LDR sensor senses the intensity of light and then controller takes appropriate steps to make garden lights on or off. The stepper motor connected to valve open or closes the valve based on the timing fixed while programming the microcontroller. And the same applies to the stepper motor connected to main gate opens and closes the gate as per garden timings. The buzzer connected to controller blows when a time comes for closing the garden.
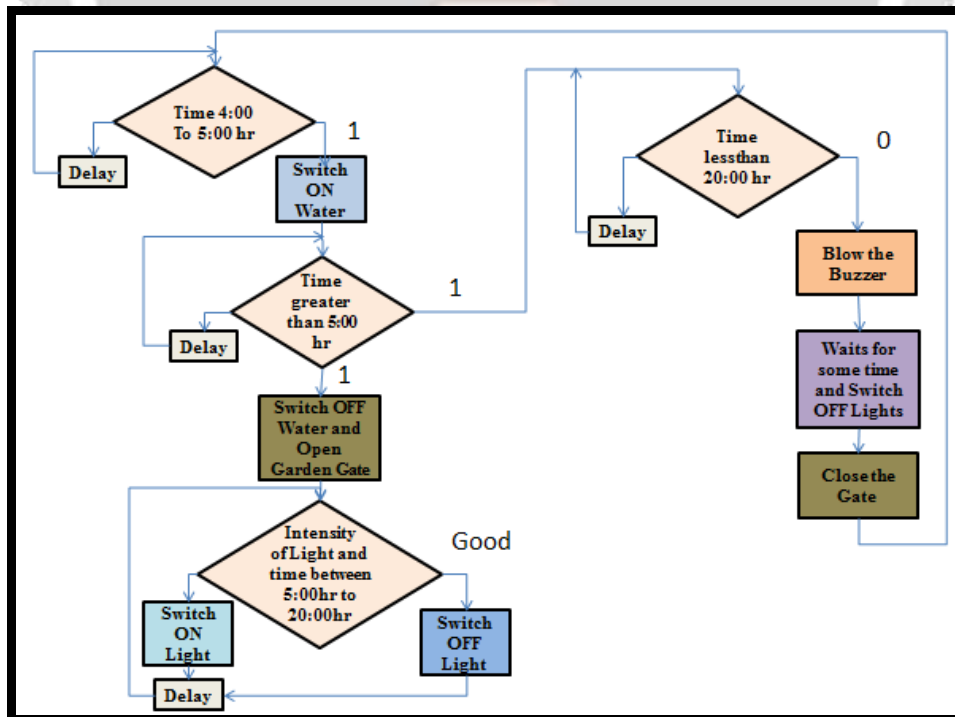
System Process Flow:

Figure 2: Automated Supervisory System for Public Gardens Process Flow

As seen from figure 2, the microcontroller first check whether time is between 4:00hr to 5:00hr if it so then it switch on water and wait till time becomes greater than 5:00hr. When time is greater than 5:00hr the microcontroller switch off the water and opens the gate. The gate is open till 20:00hrs. Once time is not less than 20:00 it blows buzzer and waits for some time and then it switch off the light. And finally closes the gate. The entire process is repeated daily.
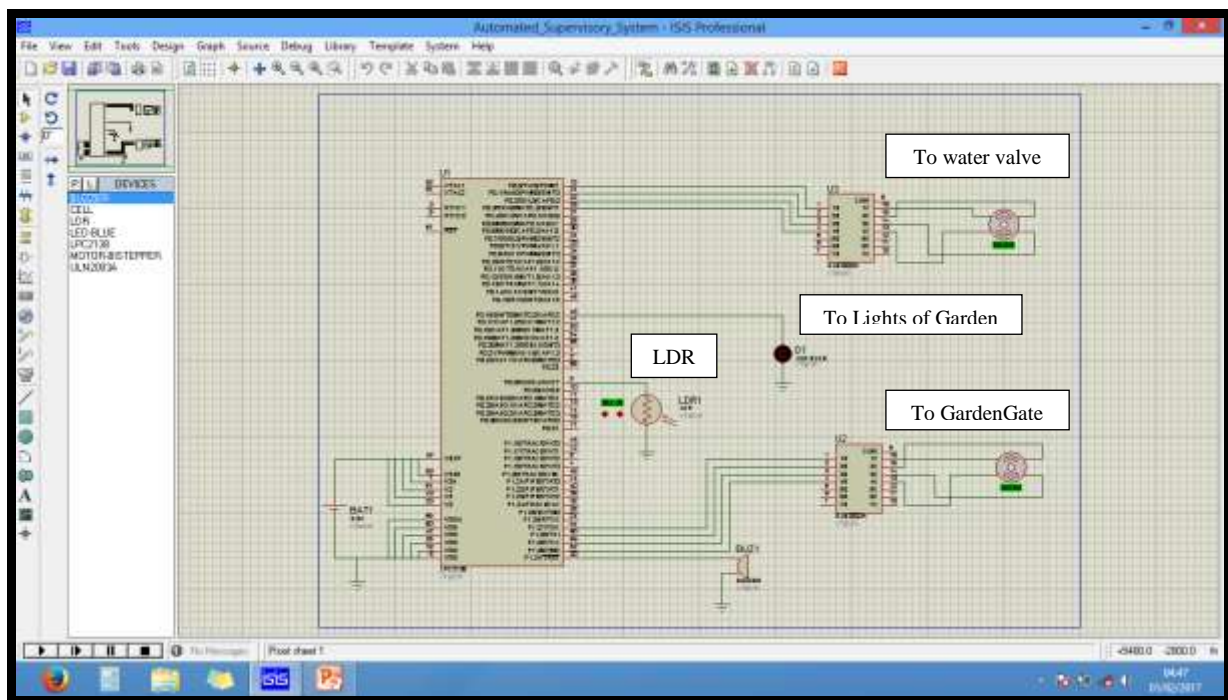
Experimental Results:

Figure 3: Automated Supervisory System for Public Gardens Proteus Simulation

The figure 3, demonstrate the hardware simulation carried out in proteus software. The design in proteus replicates exactly the block diagram and the process flow.

Conclusion:

Saving water and electricity is the main concerned of the world wide global warming issues. All the possible approaches and steps are taken across the globe in order to reduce water scarcity and electricity usage. Among all one possible approach is through automated supervisory system for public gardens. This system not only automates the process but also helps in keeping garden green for the people with proper watering, lighting and finally intimating the people of garden timing.

Acknowledgement:

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