Continuous Water Level Monitoring Using GSM and Zigbee Technology in Fields and Dams

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Abstract. The main objective of our paper is to maintain the constant water level and temperature in the agricultural fields and also to automatically switch on and off the lights by using LDR. Whenever we find any inappropriate conditions we have to transmit the sensor data to the receiver section by using zigbee and at the receiver end zigbee receives the data and gives it to the microcontroller and the receiving end controller sends the data to the predefined user by using Gsm.

Keywords. GSM, ARM7, LDR

Introduction

Water is a limited resource and is essential for agriculture, industry and for creature's existence on earth including human beings. Lots of people don't realize the true importance of drinking enough water every day. More water is wasted by many uncontrolled way. This problem is quietly related to poor water allocation, inefficient use, and lack of adequate and integrated water management. Therefore, efficient use and water monitoring are potential constraint for home or office water management system.

Tank Water Level Monitoring, is used to avoid overflowing and intimate level of water in the tank. Water controlling system implementation makes potential significance in home applications. The existing automated method of level detection is described and that can be used to make a device on/off. Moreover, the common method of level control for home appliance is simply to start the feed pump at a low level and allow it to run until a higher water level is reached in the water tank. This is not properly supported for adequate controlling system. Besides this, liquid level control systems are widely used for monitoring of liquid levels, reservoirs, silos, and dams etc. Hence, a monitoring system to monitor the tank water level has to be developed and eventually able to alert the person in-charge or technician on the current status of the tank. The system consists of water level detector circuitry integrated with GSM module. Upon reaching the critical water level in the tank, an SMS is sent through GSM module to the technician and the motor is turned OFF.

In older system, a contact type sensor is used and it will affect the quality of the water. The actual status of the level of water remains unavailable as there is no provision for monitoring the status of the level of the water in the water tank. There is a considerable amount of wastage of water and energy due to frequent overflow conditions and excessive use of pumps. The pump operation is done manually. Pump operating staff are required to do the pump operation [6].

Proposed Methodology

A new technique is proposed to continuously monitor the water level of water systems such as water tanks. The user can send the message to the system to know the water level details of the tank. This can also be used to control the working of pump automatically by turning OFF the pump when the critical level of water in tank is reached and send the message to the user that the water in the tank is full. This is designed to monitor the water level with the help of ultrasonic sensor and GSM technology [1].

Block Diagram

Now-a-days due to gradual increase in robotic technology, in every field robots are being used. The robots can be operated from a stationary position. By using wireless technology we can implement this robot in military applications such as bomb diffusing.

- High Efficiency and speed.
- Low power consumption
- We can control any object using color.

In this paper it accepts certain range of red colors, not fixed color. In future this concept helps in controlling cars using LED.

The ARM7TDMI-S processor is a member of the ARM7 family of general purpose 32-bit

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omputer (RISC) principles. The RISC instruction set, and related decode mechanism are much simpler than those of

Complex Instruction Set Computer (CISC) designs. The simplicity gives:

- A high instruction throughput.
- An excellent real-time interrupt response.
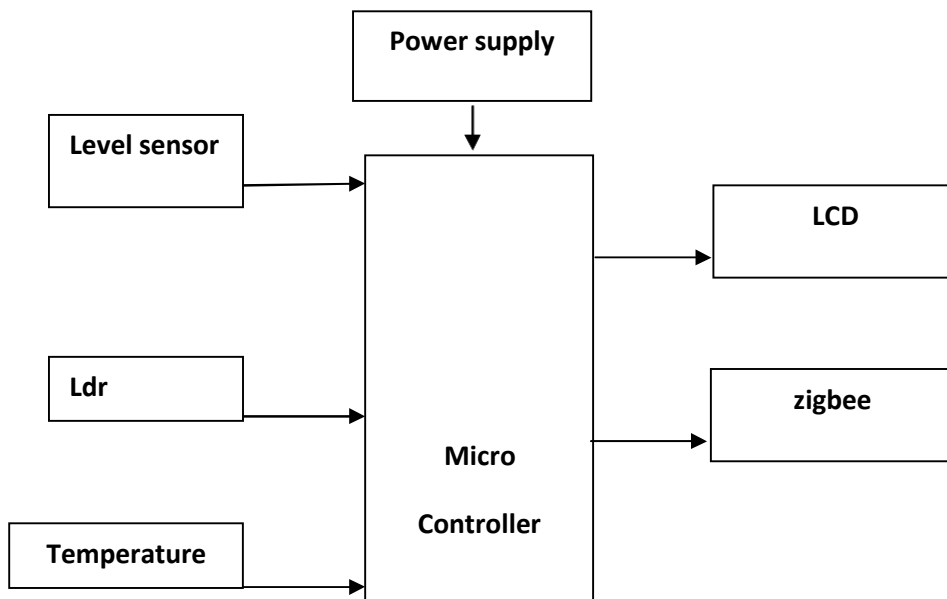- A small, cost-effective, processor macro cell.
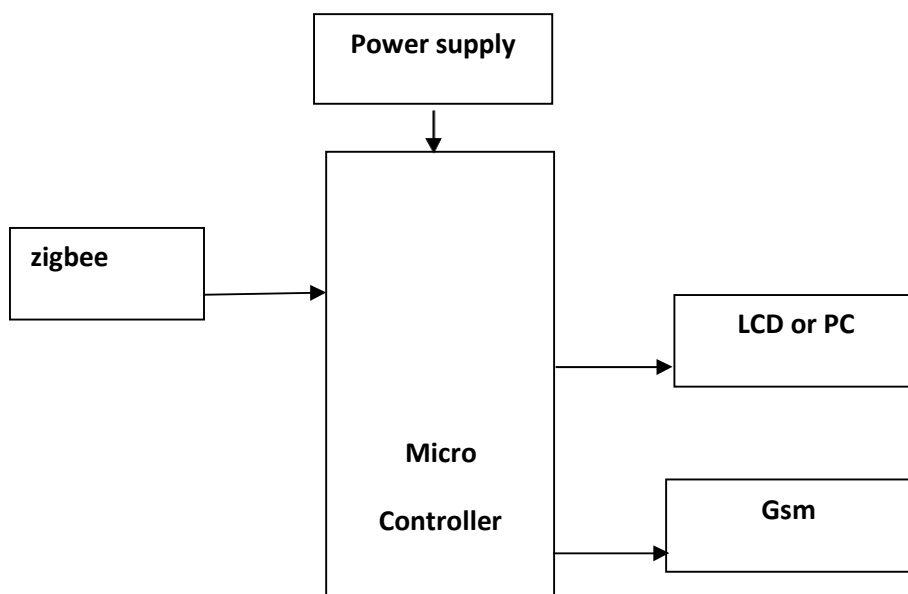
Fig 1: Transmitter section

Fig 2: Receiver section

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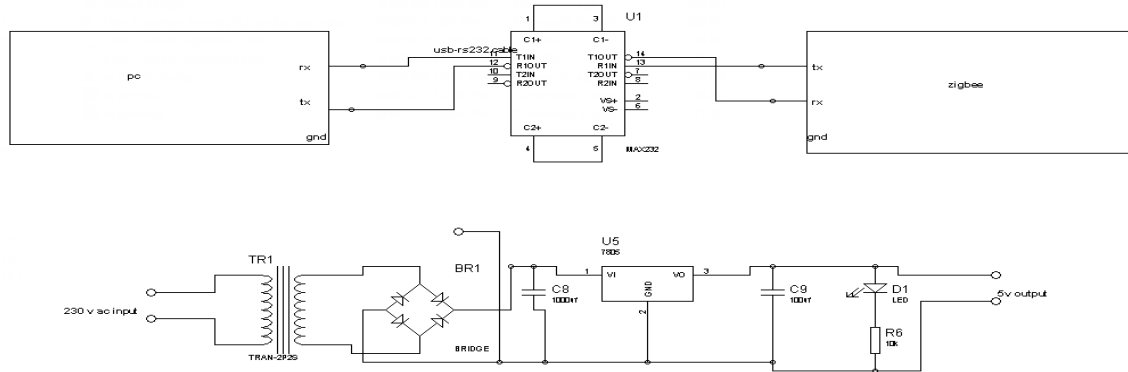
SCHEMATIC DIAGRAM

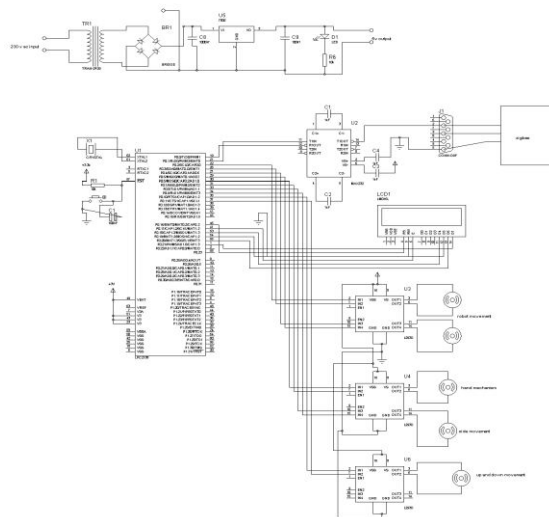**Fig 3:** Transmitter schematic diagram

Fig 4: Receiver schematic diagram

Fig 5: hardware Implementation of Proposed system

CONCLUSION

In this paper has achieved its objectives and provides a system that could monitor the tank water level and report its level via SMS notification using GSM technology. It is developed with a capability to detect low level of the water in the tank and notify GSM modem to send SMS to the intended user hand phone or person incharge. The microcontroller as central processor is connected to the modem using MAX232 to interface with

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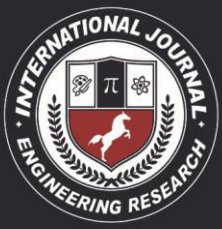
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