Smart Water Distribution System Using GSM and Microcontroller

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ABSTRACT: The main objective of project is to improve not only performance but also proper distribution of water with minimum human efforts. With increasing development of technology, the more focus is on selection of application oriented Controllers and tools, hence the concept of proposed system to control application it is combined with microcontroller. In order to overcome the normal conflicts facing during water supply and to minimize the water leakage in the corporation water distribution pipe. With the rapid changes in automation and information technologies in recent decades, the control of all equipment has been performed. In our research idea, we are using microcontroller for distributing the hostel water in efficient manner, as they are inexpensive, easy to install and very flexible in applications.

KEYWORDS: Water distribution, AWD system

I.INTRODUCTION

Water is basic need of human being. Water Distribution is one of the important process. Automation provides optimized solution to all problems of distribution of water system. Now-a-days, Water distribution system faces so many problems like water leakage & improper water supply. This leakage causes drastic reduction in pressure ofwater flowing through supply line. Due to this, consumergets less amount of water. By, considering above scenario we are trying to find solution for the problem The main aim of this project is to provide effective water supply to each consumer. In this project we are working on the distributed network under the area of single water tank. Automation plays an increasingly significant role in the global economy.

Real-time monitoring of asset condition for preventive maintenance. With advanced sensing technologies, data on pipeline condition can be used to develop a risk-based model for pipe replacement projects.
This enables WSN to better plan and schedule the mains replacement and rehabilitationprogramme, so that the right pipes are replaced at the right time. Real-time pressure and water quality monitoring to enhance planning and network operations. Real-time sensor and meter data allow WSN to monitor the hydraulic and water quality situation throughout the network. Leaks can be located promptly to minimize water losses, and stress in pipes can be detected early so that actions can be taken to mitigate the risk of pipe bursts. Continuous monitoring of the water quality in the distribution pipelines also provides early warning of potential contamination. Automated valve operations can then respond by shutting valves in the affected areas to prevent flooding, further damages, water loss, or spreading of the contaminated water. Real time sensor data can also be used for calibration of hydraulic models, to replace the traditional calibration process which is tedious, time-consuming and expensive.

II.SCOPE

There is a scope for future work in every project in order to improvise the project and convert it into a product which can be used. Some of the future scopes of this project are as follow

• A noninvasive sensor can be used to detect the leak thereby detecting the leak without affecting the integrity of the distribution system.
• Determining the exact location of leak by using more number of sensors
• T joints can be considered in leak detection.
• The database can be improved.
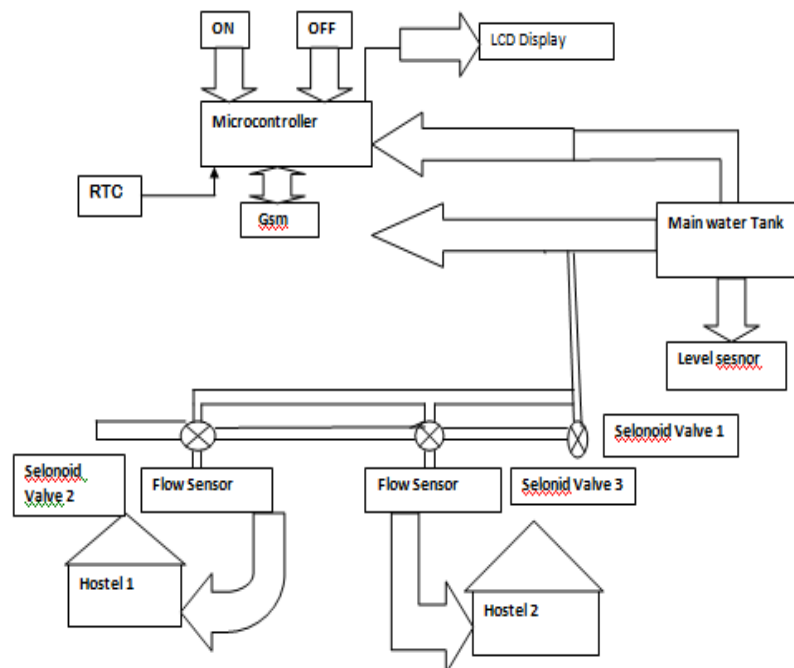
III.SMART WATER DISTRIBUTION SYSTEM

Fig.1 Block diagram of Smart Water Distribution System

SPECIFICAION:

1. LM78XX Series Voltage Regulators
   • Output current in excess of 1A
   • Internal thermal overload protection
   • No external components required
   • Output transistor safe area protection
   • Internal short circuit current limit
   • Available in the aluminum TO-3 package

2. RELAY (**ULN2803**)

   • Internally frequency compensated.
   • Large DC voltage gain: 100 dB.
   • Very low supply current per operator essentially independent of supply voltage.
   • Low input bias current: 20 nA (temperature compensated).

- Low input offset voltage: 2 mV.
- Differential input voltage range equal to the power supply voltage.
- Large output voltage swing 0 V to (VCC – 1.5 V).

3. RTC

- size: 38mm (length) * 22mm (W) * 14mm (height)
- Weight: 8g
- Operating voltage :3.3 - 5 .5

4. GSM

- Power supply : Single supply voltage 3.4V – 4.5V
- Power saving : Typical power consumption in SLEEP mode to 2.5mA
- Frequency bands:

    1.SIM300 Tri-band: EGSM 900, DCS 1800, PCS 1900. The band can be set by AT COMMAND, and default band is EGSM 900 and DCS 1800.
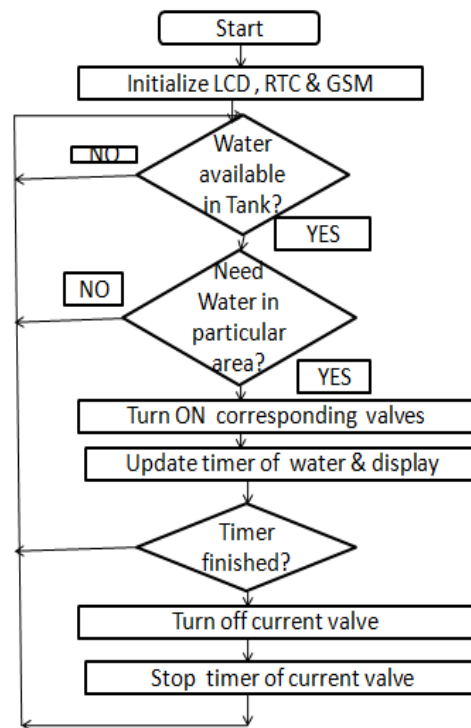
    2. Compliant to GSM Phase 2/2+

Fig.2 FLOW CHART

IV.RESULTS

Fig.3: Water Distribution System

ADVANTAGES:

- AWD System provides balanced water distribution through the society
- Save water and power
- AWD system focuses on energy crisis
- Convenience of 24 hour access.

DISADVANTAGES: Less control over usage.

V.CONCULSION

The automation of water distribution system eliminates not only water wastage but also provides continuous water flow according to the set point. This project is automatic so it reduces lots of man power. The automatic water distribution system ensures to avoid wastage of water and reduces time. And also we can completely avoid stealing of water inthe pipelines. So that people could get equal share of water. This system is excellent and cost effective. It is best way to prevent the drinking water from the theft

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