

# Water Leakage Detection System

Dr.G.Amudha

Head of the Department, Department of Computer Science and Business Systems,  
R.M.D Engineering College, Chennai, TamilNadu,India  
gav.csbs@rmd.ac.in

Sameer Ahamed A, Rohith

Student, Department of Computer Science And Business Systems, R.M.D Engineering College,  
Chennai, TamilNadu, India

## ABSTRACT

Water leakages in pipelines and water distribution systems are the major issues in many countries. In this project, we propose an automatic water pipeline leak detection continuously monitor the water pipelines to reduce manpower involvement. This device not only reduces human resource but also the time used to process collected information. Our device allows leak detection staff to remotely listen to leak of any pipelines by focusing their attention on the suspicious area. The leak detection staffs can easily distinguish the real leakage from the false alarm by our system design. If leakage occurred, leak detection staffs will be able to determine the severity of the leak and its precise location.

## INTRODUCTION

Water is the most precious resource in the world. Water supports human activities, food production, and economic development. While sporadic droughts and limited reserves of fresh water (due to less rainfall) and other natural aspects will lead to water shortages, the enormous pressure on water demand is coming mainly from the population increase. The accessibility of fresh water depends heavily on the efficiency of water distribution system. It is influenced by how well a government is able to gather and distribute water to end-users with minimal waste. For those older pipeline systems, the loss would be significantly higher. However, if the technology is in place, any form of failure (aging pipeline, stress, cracks, etc.) during transport water can be detected at an early stage to avoid catastrophic damage. In the current market, there is no water pipe system completely leakproof; even the best structured system cannot remain watertight throughout its service

## EXISTING SYSTEM

In Existing system, using ultrasonic sensor this is indicate the water level only and the leakage will detect by humans .it more complex procedure to find underground pipe line leakages. And this system finds the leakage based on decreasing the water level. The disadvantages of the existing system is that many functions are being performed manually and the accuracy rate of the system is considerably low.

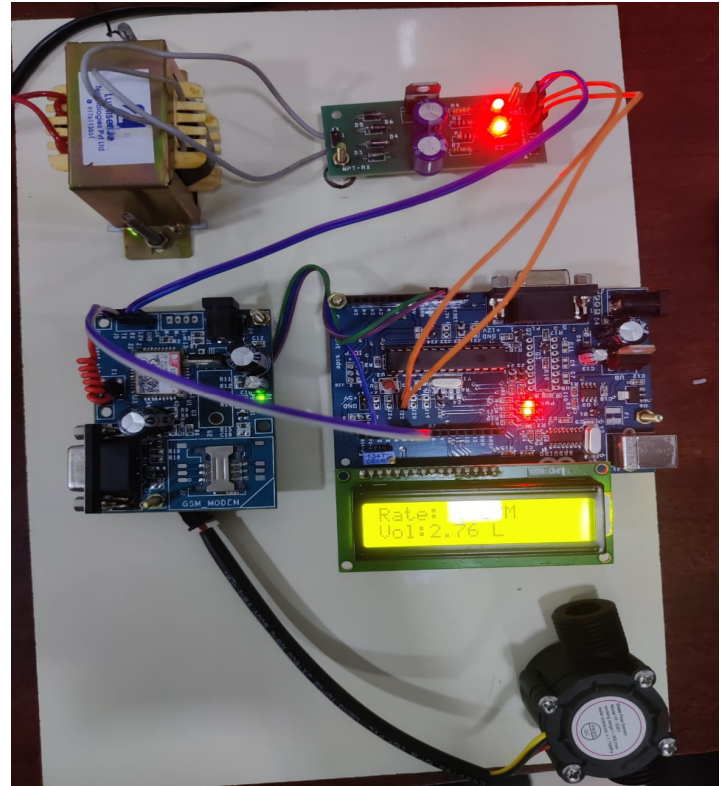
## PROPOSED SYSTEM:

In this project, we are going to build a water flow sensor using Arduino. We will interface the water flow sensor with Arduino and LCD, and program it to display the volume of water, which has passed through the valve. Then by using NODEMCU we get the Wi-Fi connectivity to our system then GSM is used to send the SMS notification. The main highlights of the project are the security provided to the user

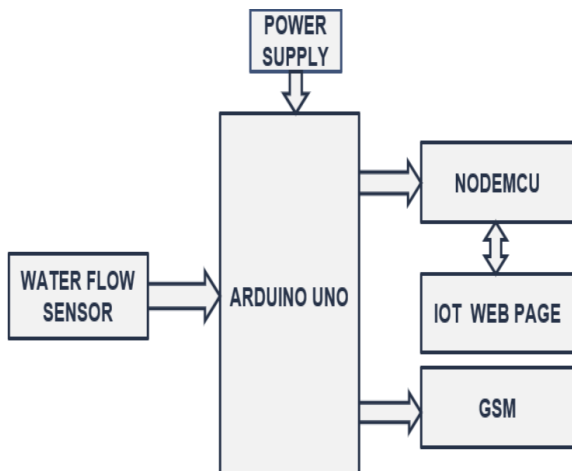
by the system and the efficient performance rate of the system, not to mention its low cost making it easily accessible for all (both industries and household). With the advance in technology the system also provides a SMS notification the user’s mobile phone to alert the user wherever he/she is at the moment about the leakage.

### METHODOLOGY:

In the below stated block diagram the essential parts of the system are depicted which consists of [1] Water flow sensor which determines the flow rate of the water in the pipe and records the flow.[2] Arduino uno microcontroller board which is programmed to determine the normal flow rate and the excess flow rate and also contains the user’s mobile number to alert notifications.[3] NODEMCU is available which can connect objects and let data transfer using Wifi protocol. The NODEMCU is connected to a IOT webpage and the Arduino is connected to a GSM model which sends the alert notifications to the user’s mobile phone.



Working model



### OUTCOME OF PROPOSED SYSTEM

OUTPUT 1:

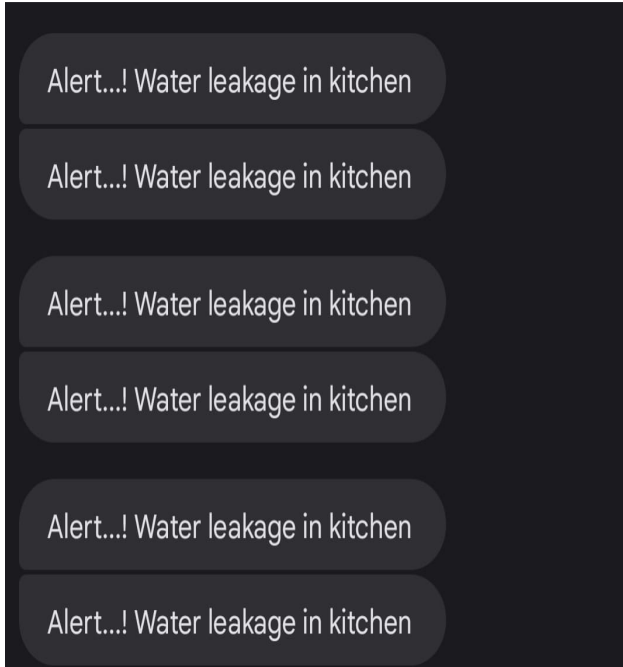
Water flow sensor sense the water leak and sends the readings to Arduino.

OUTPUT 2:

All the readings are continuously update on IOT Web page by the help of NODEMCU.

OUTPUT 3:

If any water leakage SMS notification send to user.



Processing in Sensor Networks, Cambridge, 2007.

[4] D. Chatzigeorgiou, K. Youcef-Toumi and R. Ben-Mansour, "Design of a novel in-pipe reliable leak detector," IEEE/ASME Transactions on Mechatronics, vol. 2, no. 20, p. 824-

**WATER LEAKAGE LOCATION IS ALERTED TO THE USER.**

### **CONCLUSION:**

Water pipeline leakage is a major problem that many countries are currently facing. It not only wastes valuable natural resources, but also creates huge economic losses. Although there are different solutions on the market to solve this problem, the results are still unsatisfactory. The main reason is that there is no systematic approach to the application and implementation of the technology.

### **REFERENCES:**

- [1] Siemens, "The green city index," Munich, 2012.
- [2] 1. Thornton, R. Stunn and G. Kunkel, Water Loss Control!, Second Edition, The McGraw-Hill Companies, Inc., 2008
- [3] I. Stoianov, L. Nachman, S. Madden and T. Tokmouline, "Pipenet: A wireless sensor network for pipeline monitoring," in 2007 6<sup>th</sup> international Symposium on information