



e-ISSN: 2278-8875

p-ISSN: 2320-3765

# International Journal of Advanced Research

in Electrical, Electronics and Instrumentation Engineering

Volume 10, Issue 5, May 2021

**ISSN** INTERNATIONAL  
STANDARD  
SERIAL  
NUMBER  
INDIA

**Impact Factor: 7.122**

9940 572 462

6381 907 438

ijareeie@gmail.com

www.ijareeie.com



# Underground Drainage Blockage Detection and Rectification System

P.Suseendhar<sup>1</sup>, S.Aravinthasamy<sup>2</sup>, R.Karthick<sup>2</sup>, D.Robin<sup>2</sup>, A.Sathiyamoorthy<sup>2</sup>, E.Ajith<sup>2</sup>

Assistant Professor, Department of EEE, Jai Shriram Engineering College, Tiruppur, India<sup>1</sup>

UG Student, Department of EEE, Jai Shriram Engineering College, Tiruppur, India<sup>2</sup>

**ABSTRACT** - Smart and subversive drainage system is an imperative element of a municipal infrastructure. It is undoubtedly forms an integral part of our daily life. Nowadays, we can see that the people are facing many problems regarding drainage system. Therefore, a system which handles underground water is essential to build. This task illustrates various functions used for maintenance and monitoring of underground drainage system all over the city. Various types of sensors like flow, level, and gas sensors and water sensor are intervened by interfacing with ARDUINO in order to make the system as smart. This project acts as a system which is developed to monitor the water level, water flow and gases. If drainage system gets blocked and water overflows this blockage will be instinctively recognized by the sensor. Specific sensors reached to the threshold level, the problem will be indicated and displays the message on the information is sent through Wi-Fi to the nearby municipality service for the further corrective action. There will be network problem in WiFi when the sky is not clear. Leaky drain pipes can even undermine your drain system and cause sags and separations. Hence in order to solve this problem, the water flow monitoring sensor helps in detecting the water flow. By fitting this sensor at various places, area of water leakage can be identified and solved. In addition to this feature, the volume of water flow can also be calculated with the help of water flow sensors and Arduino.

**KEYWORDS** - Drainage System, Gas Sensors, Water Sensor, Wi-Fi, Arduino

## I. INTRODUCCION

There is a need of an integrated planning approach backed by adequate scientific data i.e, wastewater disposal. At present, whenever there is a blockage, it is difficult to figure out the exact location of the blockage. Also, early alerts of the blockage are not received. Hence, the detection and repairing of the blockage becomes time consuming. It becomes very inconvenient to handle the situation when pipes are blocked completely. The human work is needed to detect and rectify the blockage, whenever over flow occurs in the manholes. The human is suffered from the toxic gases and sewage water present in the manholes. To overcome the existing technologies, we are using a microcontroller, arduinouno and sensors for an 24 hour drainage monitoring system. Use of water level sensor, we can sense the water level in the drainage. If the water level rises to a dangerous level ,then the system will automatically indicate the signal at the maintenance center by the operation of microcontroller and arduinouno .Also, we created an additional water pumping system, it uses the filtered drainage water for pumping and it will automatically on and pump the water forcefully to the blocked area. So, the block will automatically removed and the water level is automatically fallen, (if the water level rise is based on block by any waste substance).This process will continues. Hence, there will be no overflowing of drainage water in the manholes.

## II. OBJECTIVE

- There is a need of an integrated planning approach backed by adequate scientific data i.e, wastewater disposal.
- we are using a microcontroller, arduinouno and sensors for an 24 hour drainage monitoring system.
- Use of water level sensor, we can sense the water level in the drainage.
- we created an additional water pumping system to rectify the blockage.
- There will be no overflowing of drainage water in the manholes.



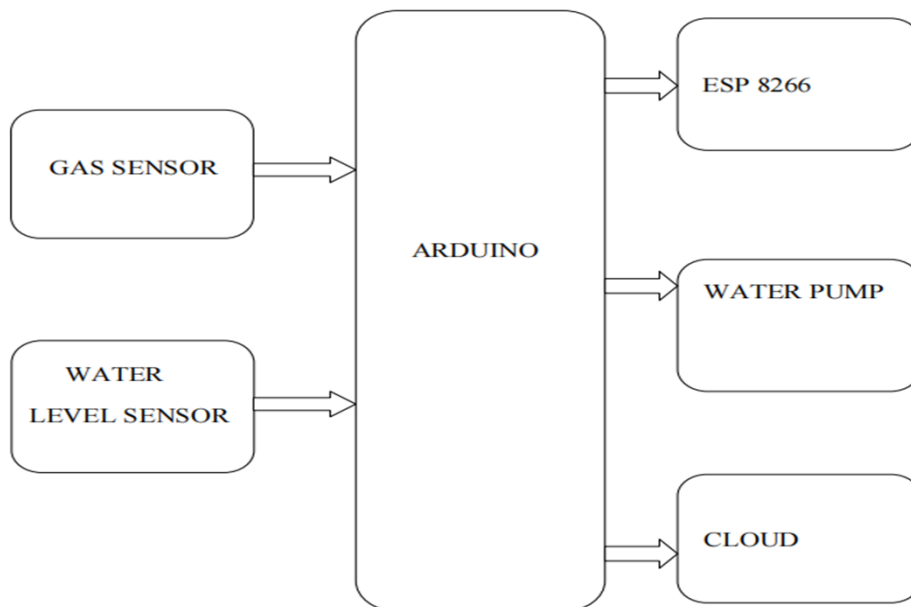
### III. PROPOSED SYSTEM

The device additionally allows fuel intake in an effective and green manner. Our research group has evolved a clever device that challenges the cuttingedge gadget and provides the following advantages for estimating the gap a automobile can tour with the available fuel inside the tank.1. Device having 4 buttons/options one for every mode and a display screen2.Device having a fifth button for a hybrid mode.

Ultrasonic degree sensor for measuring the amount of gas present within the tank4. Graduated fuel cylinder. The implementation and description of the clever drainage machine would be discussed within the previous sections of this paper. To overcome the existing technologies disadvantages we develop a 24 hr monitoring system for drainage. Use of water level sensor we can sense the water level in the drainage and if come at a dangerous level the system will automatically indicate the maintains center. And also we create additional water pumping system it uses the filtered drainage water for pumping, it will automatically on and pump the water forcefully to the blocked area. They so if it sworks, the block will automatically remove, and the water level is automatically fallen, (if the water level rise is based on block by any waste substance). Smart Sensors and Arduino based Drainage monitoring System implantation is discussed below. The core unit of this system is Arduino. The Arduino processor is programmed to sense the sewage water level and blockage. Attached gas sensors give the early report if any gas leakage by alert message or sound by cloud.

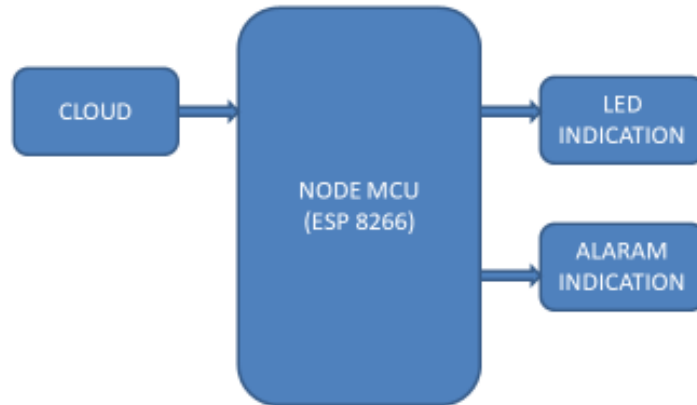
### IV. BLOCK DIAGRAM

#### A.DRAINAGE SIDE

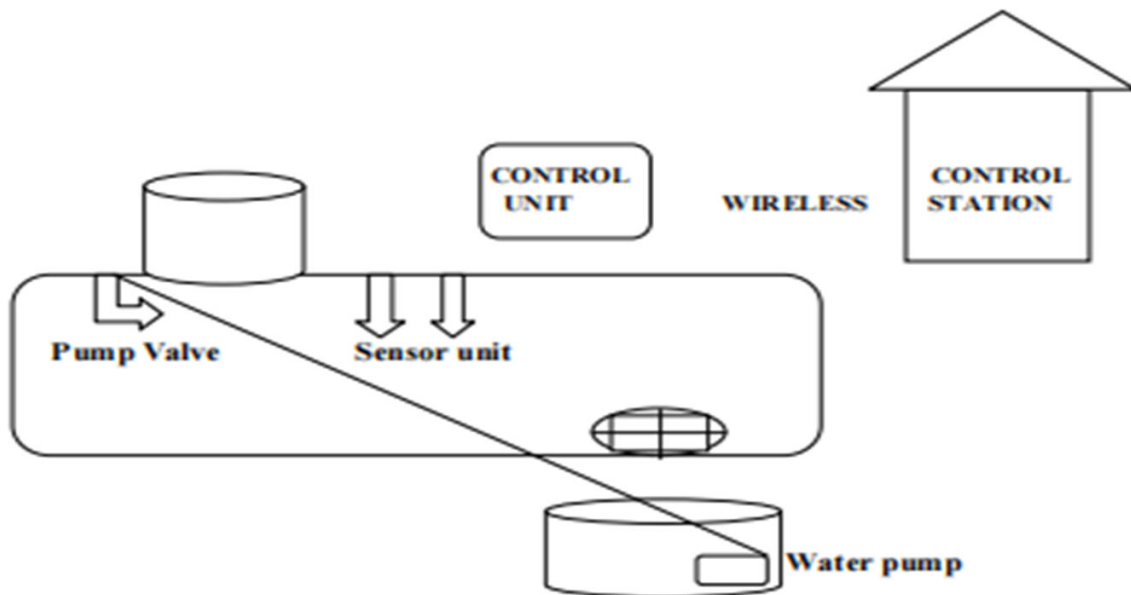




**B.MAINTENANCE SIDE**



**V. WORKING DIAGRAM**





## VI. ADVANTAGES

Water level indicator advantages include:

- Power Saver
- Money Saver
- Automatic
- Water Maximization
- Reliable Electronic Design

## VII. DISADVANTAGES

Water level indicator disadvantages include:

- Water level controls need to be replaced every 3 years.
- The rust, foul and deteriorate
- Electronics are usually built separately
- More difficult installation
- Most float switches are outdated
- No LED indicator lights
- No Warranty or Guarantee

## VIII. APPLICATIONS

Water level Indicator can be used in Hotels, Factories, Homes, Apartments, Commercial complexes, Drainage, etc. It can be fixed for single phase motor, three phase motors, and fuel level indicator in vehicles. Liquid level indicator in the huge container companies on the tank walls.

## IX. HARDWARE IMAGE



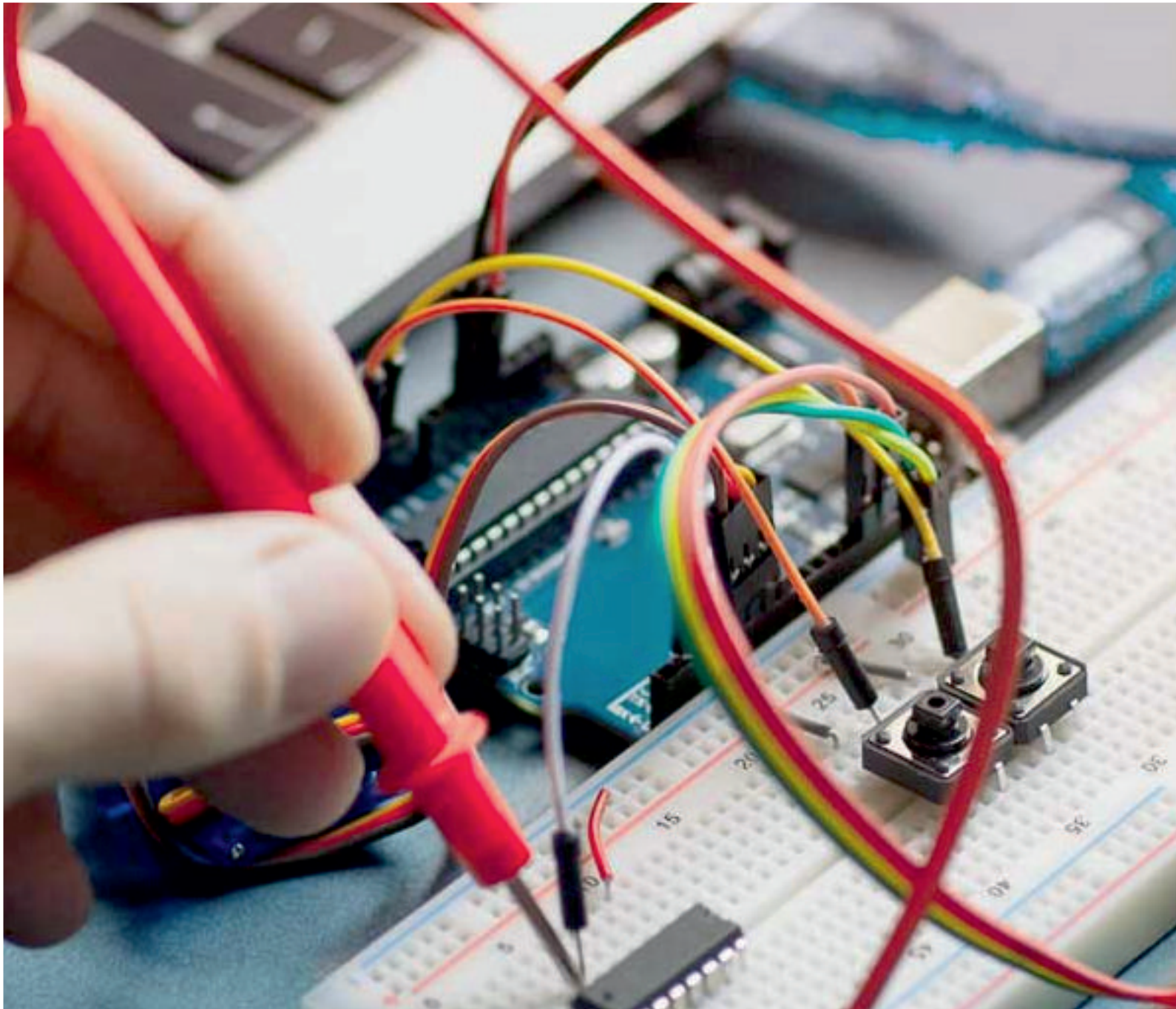


#### X. CONCLUSION

Sensor networks are considered as the key enablers for the IoT paradigm . This work addresses all about smart and real-time Drainage monitoring system through IoT applications for large and small drainage systems. By using various sensors such as gas detection, water level detection ,we can monitor the real time scenario of drainage system by for detecting the problems in drainage system. By doing this we can able to take particular action on the problems as we will receive the early alerts of blockage as well as increase. This work can be used to implement the smart and real time drainage system for monitoring as well as troubleshooting purpose.

#### REFERENCES

- [1] Prof Muragesh SK1, Santhosha Rao2, “Automated Underground Drainage and Manhole Monitoring Systems For Metropolitan Cities.”International Journal of Innovative Science, Engineering& Technology, Vol. 2 Issue 4, June 2015.
- [2]G. Gowthaman, K. Hari Haran "Automated Internet of Things for Underground Drainage and Manhole Monitoring System for Metropolitan Cities"ISSN 0974- 2239 Volume 4, Number 12 (2014), pp. 1211-1220
- [3]Deepiga, T, SivasankariA, “Smart Water Monitoring System Using Wireless Sensor Network at Home/Office”, International Research Journal of Engineering and Technology, vol.02, no.04, July 2015
- [4]Retno Tri Wahyuni1\* YusmarPalapa Wijaya2 Dini Nurmalasari “Design of Wireless Sensor Network for Drainage.
- [5]Ms.Bhanujyothi H.C, M.Charan Kumar Naidu, N.NikhilChowdary, L.Nikhil Sai, P.Vamsi Krishna “SMART DRAINAGE MONITORING SYSTEM IOT” in IEEE Journal on, vol12,Iss4,(2020).



**INNO**  **SPACE**  
SJIF Scientific Journal Impact Factor

**Impact Factor:**  
**7.122**

**ISSN** INTERNATIONAL  
STANDARD  
SERIAL  
NUMBER  
**INDIA**



# **International Journal of Advanced Research**

**in Electrical, Electronics and Instrumentation Engineering**

 **9940 572 462**  **6381 907 438**  **ijareeie@gmail.com**



[www.ijareeie.com](http://www.ijareeie.com)

Scan to save the contact details