An IOT Based Drainage Blockage Prevention System

ADITYA S. GAMBHIRE[1], OM S. BORSE[2], SUJIT B. BHUJBAL[3], PROF. D.P. KADAM[4], PROF.TUSHAR P. PANDHI[5]

[1, 2, 3, 4, 5] *Department of Electrical Engineering, MET's Institute of Engineering, Adgaon, Nashik, Maharashtra, India*

Abstract - If drainage system gets blocked and water overflows it can be identified by the sensor system. And that sensor sends information via the transmitter which is located in that area to the corresponding managing station. The system governing the flow of sewage from the pipes. As there are many blocked and un-cleaned open drains in the country which causes non-hygienic situations which lead to various health problems in humans. Due to waterlogged streets there are many road accidents which lead to harm to men- life. Sometimes drains are not regularly cleaned by drain cleaners and there is no monitoring or reporting of this. This causes blockage and unhygienic drains leading to bad health.

I. INTRODUCTION

In urban environments, drainage systems play a critical role in managing water flow and preventing flooding. However, the increasing complexity of these systems makes them susceptible to blockages, leading to disruptions and potential damage. To address this challenge, an innovative solution emerges: an IOT-based drainage blockage prevention system. By seamlessly integrating Internet of Things (IOT) technology into traditional drainage infrastructure, this system aims to revolutionize the way we manage and maintain drainage systems, ensuring optimal functionality and mitigating the risk of blockages. Through the deployment of sensors, actuators, and real-time data analysis, the IOT-based solution not only detects potential blockages but proactively prevents them, ushering in a new era of smart and efficient drainage management.

II. LITERATURE REVIEW

The Internet of Things (IoT) consists of real life objects, communication devices attached to sensor networks in order to provide communication and automated actions between real world and information world. IoT came into existence because, without human interaction, computers were able to access data from objects and devices, but it was aimed at, to overcome the limiting factors of human entered data, and to achieve cost, accuracy and generality factors. Sensor Network is a key enabler for IoT paradigm.

It represents the implementation and design function of an Underground Drainage and Manhole Monitoring System (UDMS) for IOT applications. The vital considerations of this design are low cost, low maintenance, fast deployment, and a high number of sensors, long life-time and high quality of service. The proposed model provides a system for monitoring the water level and atmospheric temperature and pressure inside a manhole and to check whether a manhole lid is open. It also monitors underground installed electric power lines. In real time, UDMS can remotely monitor current states of the manholes

III. SYSTEM DESIGN
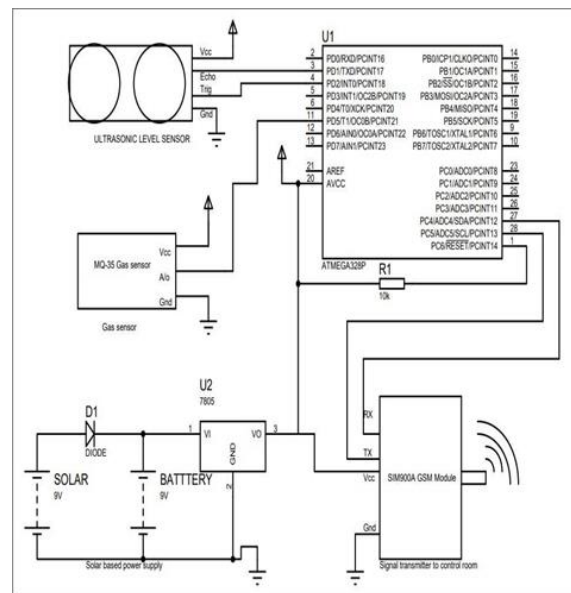
VI. OBJECTIVE

The need for an IOT-based drainage blockage prevention system stems from the challenges faced by conventional drainage systems in urban areas. Several factors contribute to the necessity of implementing such a project.

Rapid urbanization has increased the strain on existing drainage infrastructure. As cities grow, Conventional systems may struggle to handle the increased volume of water flow, leading to blockages and potential flooding.

Blockages in drainage systems can result in environmental pollution due to stagnant water and the accumulation of debris. An IOT solution can aid in maintaining cleaner waterways and reducing the ecological impact of drainage issues.

CONCLUSION

This project proposes methodology for monitoring and managing underground drainage system. Real time update of the blockage helps in maintaining the repair in drainage check thus avoiding the hazards. This project provides a smart solution to monitor the toxic gases present in sewage and alert the manual scavengers when the level goes above the specified limit. The smart drainage monitoring system helps the people to move to safer areas when the gas level is above the specified limit. This system helps to reduce the death of sewage workers and it also has an advantage to monitor the amount of pollution on their centralized control room using the wireless communication.

REFERENCES

[1] Prof Muragesh SK, Santhosha Rao, "Automated Internet of Things for Underground Drainage and Manhole Monitoring systems for Metropolitan Cities." International Journal of Innovative Science, Engineering & Technology, Vol. 2 june 4, June-2015.

[2] Lazarescu, M. T., "Design of a WSN Platform for Long-Term Environment Monitoring for IoT Applications," Emerging and Selected Topics in Circuits and system, IEEE journal on, vol 3, no.1,pp.45,54, March 2013.

[3] T.Leppanen, Harjula, E., Ylianttila, M., Ojala, T and Yang, L. T. (2013). "Cloud things: A common architecture for integrating the internet of things with cloud computing" Proceeding of the 2013 IEEE 17th International conference on computer supported cooperative work in design (CSCWD), 651-657(June-2013).

[4] T.Leppanen, Harjula, E., Ylianttila, M., Ojala, T and Yang, L. T. (2013). "Cloud things: A common architecture for integrating the internet of things with cloud computing" Proceeding of the 2013 IEEE 17th International conference on computer supported cooperative work in design (CSCWD), 651-657(June-2013).