

# **Manhole Monitoring System**

**Khushi Chunarkar<sup>1</sup>, Ashlesha Patil<sup>2</sup>, Shweta Maheshkar<sup>3</sup>**

Department of Computer Science Engineering<sup>1, 2, 3</sup>

Rajiv Gandhi College of Engineering, Research and Technology, Chandrapur, India

ariyachunarkarharrya@gmail.com, patilashlesha875@gmail.com, shwetamaheshkar200320@gmail.com

**Abstract:** *The sewage system must be monitored in order to maintain the city clean. Uneven sewage system monitoring causes drainage to become clogged. Blockages in the sewer system are a major source of sewer flooding and pollution. Workers may be involved in an accident as a result of their ignorance of the situation inside the manhole. To get the necessary output from the module, this model uses a regulator circuit, sensor driver circuit, microcontroller, serial communication devices, and IoT module. Our answer to this problem is an IoT system that warns municipal officials about overflowing drains immediately by notification at the city control centre, as well as citizens via a mobile app. The essential component of this system is a low-power IoT-based portable gadget that is mounted below the manhole cover. Nowadays, accidents due to broken and missing manhole covers are quite frequent. Manholes are not monitored properly in developing countries. These accidents can lead to serious injuries and also death. Hence, here we propose a system to overcome this problem. We have included an array of sensors for complete monitoring of the manhole cover so that such accidents can be prevented. This project includes a Tilt sensor, Level sensor for to measure the level of water which could need to crack information, a tilt sensor is introduced to indicate whether the manhole can tilt, in case of any alert due to any of the parameters we send an SMS to an APP trough wifi. Also, all the parameters are continuously updated on the APP*

**Keywords:** Manhole, Sewage, microcontroller, Atmega328P, Tilt Sensor, Level Sensor

## **REFERENCES**

- [1]. Chen, C., Chen, H., & Fang, X. (2019). IoT-based manhole cover monitoring system with ZigBee wireless sensor networks. *IEEE Access*, 7, 143398-143407.
- [2]. Chen, C., Chen, H., & Fang, X. (2019). IoT-based manhole cover monitoring system with ZigBee wireless sensor networks. *IEEE Access*, 7, 143398-143407
- [3]. Aslam, M., Khan, N., & Shahid, M. (2019). IoT-Based Manhole Cover Monitoring System Using LoRa Technology. *Sensors*, 19(6), 1291.
- [4]. Lee, H., Kim, J., Kim, Y., & Kim, D. (2019). IoT-based manhole cover monitoring system for smart cities. *Sustainability*, 11(18), 4848
- [5]. Zhang, M., Han, Y., Zhang, Z., & Chen, L. (2021). A novel IoT-based smart manhole monitoring system for urban infrastructure safety. *Journal of Ambient Intelligence and Humanized Computing*, 12(3), 3217-3229