



A short review on Smart Air Pollution and Temperature Detection System

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Abstract: Air pollution is one of the major environmental problems affecting human health and ecosystems. Traditional air quality monitoring systems provide limited coverage and may not accurately reflect the actual air quality in a particular location. In this paper, a short survey of a smart air pollution detection monitoring system is studied that uses low-cost sensors, wireless communication, and cloud-based data analysis. The system provides users with real-time air quality information through a web interface and alerts users when air pollution levels exceed certain thresholds.

INTRODUCTION

Air is considered as one of the most significant elements of human being surrounding. The main source of air is the earth atmosphere such as Nitrogen, oxygen, Sulphur. The contaminant free atmosphere is considered as one of the most crucial aspects for human health and life. Air pollution is a growing problem worldwide due to its adverse effects on human health and the environment. Traditional air quality monitoring systems are expensive and provide limited coverage. The measurement unit of the air pollutant is parts per million (ppm). The pollutants in the air affect the public health which may cause sever illness. There are around 7 million person deaths are caused by air pollution. Thus, there is a crucial need to develop some alternatives that can measure the air pollution. However, several researchers design the smart air pollution detection system. The proposed work consists of a comprehensive review of the various smart air pollution detection system.

LITERATURE SURVEY

In this regard, Okokpukie *et.al.*, proposed a model to control air pollution by developing the smart air pollution monitoring system, which helps to keep a record of air quality and display the corresponding result on the display screen[1]. In the model, Okokpukie *et.al.*, mainly considers Arduino uno and utilizes an online application platform to connect it with the data network. Further, Mahesh *et.al.*, proposed an inexpensive air quality monitoring system using IoT based network including the Zigbee protocol for communication purpose[2]. In this regard, Vasanth *et.al.*, develops a low-cost smart air pollution control system which helps to measure various factors such as humidity, air quality and the temperature. They mainly incorporate the IOT based air pollution monitoring system using the Aurdino IDE module. Further, it is obtained that the experimental results show a close match with the expected results[3]. Jo *et.al.*, develops an another IoT based system with the help of smart web sensor. The device uses the IoT based set of sensing devices that helps to collect the necessary data and comprises of laser and dust sensor CO₂ sensor, CO sensor, temperature sensor, that will help to determine the air quality[4]. Moreover, they used the cloud computing technology, amazon web service platform. Harinarayan *et.al.*, implemented an efficient air pollution control monitoring system using local area network by deploying LAN based sensor nodes[5]. The proposed work mainly focuses on the low cost, low power, and portable air pollution monitoring system and its architecture composed of sensing layer, network layer, application layer.

CONCLUSION

The smart air pollution detection monitoring system is an effective tool for monitoring air pollution and raising public awareness. The system uses low-cost sensors, wireless communication, and cloud-based data analysis to provide real-time air quality information to users. The system is easy to deploy and maintain and can be used to monitor air pollution in various locations. The system can also be used to identify pollution hotspots and support policy decisions related to air quality.

**REFERENCES**

- [1] K. Okokpujie, E. Noma-Osaghae, O. Modupe, S. John, O. Oluwatosin, A smart air pollution monitoring system, *Int. J. Civ. Eng. Technol.* 9 (2018) 799–809. <https://doi.org/10.30955/gnj.004396>.
- [2] P.S. Mahesh, a Survey Paper on Air Pollution, (2018) 663–666.
- [3] M.P. Gowda, G.Y. Harshitha, K.N. Jyothi, R. Padma, *ow Chart*, 9 (2021) 69–71.
- [4] J. Jo, B. Jo, J. Kim, S. Kim, W. Han, Development of an IoT-Based indoor air quality monitoring platform, *J. Sensors*. 2020 (2020) 13–15. <https://doi.org/10.1155/2020/8749764>.
- [5] H. P, U.S. Kumar, An Analysis on the Implementation of Air Pollution Monitoring System, *SSRN Electron. J.* (2021) 206–211. <https://doi.org/10.2139/ssrn.3791147>.