

## **A framework for air pollution monitoring in smart cities by using IoT and smart sensors**

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In the last half century, the world population migrated from villages to cities due to lack of facilities, education institutes, medical services and job opportunities in the remote areas. Due to this migration the big cities are under pressure to remain live-able and healthier because population increasing quickly as compare to the services infrastructure. As the city's population increasing very rapidly and demand for the civic facilities remains very high. One of the major addition is the road traffic which become the big contributor in air pollution and make the environment very unhealthy. In modern era, it is important to persistently monitor the environmental pollution of city to make it healthier and live-able. Internet of Things (IoT) with smart sensor system is the solution which can be used to monitor the city for various purposes and one of them is the pollution monitoring in big cities. Sensor system can be installed and managed by integrating with IoT and be monitored by sitting in city central office. In this research work, a framework for air quality monitoring is proposed to monitor environmental pollution for the smart cities by using IoT and smart sensors. The proposed system is capable to measure the humidity, carbon emission, temperature, smoke, sound and other hazardous particulate in the atmosphere and send the measurements to city central office where it will be analyzed for further actions for the betterment of city environment. Collected data is banked in a data bank for future use and also can be shared with other research institute and environmental agencies.

### **Biography**

Arshad Ali is associate professor of Information Technology and Head of Accreditation & Quality at Islamic University, Al Madinah Al Munawarah, Saudi Arabia. He holds the current post since 2018. He specializes in the area of Wireless Sensor Network. He also working with ABET as Program Evaluator (PEV). He also available for ABET Accreditation consultancy in private capacity. He joined Aston University, Birmingham, UK and obtained his MSc Telecommunication Technology in 2007. In 2007, he joined Geotechnical Group, Department of Engineering, and University of Cambridge as Research Ass. (2007- 2009). In 2009, he was awarded a PhD (2009- 2012) scholarship from the Lancaster University, UK and he awarded PhD in 2012. He worked on the UK-NEES project and designed communication system for live experimentation between UK Universities (Cambridge, Oxford and Bristol). He was also part of the project at University of Cambridge "Installing wireless sensors in london underground tunnels" and it was collaborated with Imperial College, London. He is currently working as assistant professor and the Head of the Quality and Accreditation (ABET, NCAAA) in Islamic University Al Madinah Al Munawarah, KSA. His research interests are in the field of Wireless Sensor Network.