Air Quality Monitoring System Based on IoT Using Raspberry Pi

Abstract:

Air pollution is the largest environmental and public health challenge in the world today. Air pollution leads to adverse effects on Human health, climate and ecosystem. Air is getting polluted because of release of Toxic gases by industries, vehicular emissions and increased concentration of harmful gases and particulate matter in the atmosphere. Particulate matter is one of the most important parameter having the significant contribution to the increase in air pollution. This creates a need for measurement and analysis of real-time air quality monitoring so that appropriate decisions can be taken in a timely period. This paper presents a real-time standalone air quality monitoring system which includes various parameters: PM 2.5, carbon monoxide, carbon dioxide, temperature, humidity and air pressure. Internet of Things is nowadays finding profound use in each and every sector, plays a key role in our air quality monitoring system too. Internet of Things converging with cloud computing offers a novel technique for better management of data coming from different sensors, collected and transmitted by low power, low cost ARM based minicomputer Raspberry pi. The system is tested in Delhi and the measurements are compared with the data provided by the local environment control authority and are presented in a tabular form. The values of the parameters measured are shown in IBM Blue mix Cloud.

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