Development of multi-gas measurement and air quality – monitoring system

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Abstract. The level of air pollution is increasing rapidly in and around cities due to increase in population, industrialization, transportation which leads to adverse effect on human health and ecosystem. In this paper, we present a cost-effective developed multi-gas measurement and air quality- monitoring system. Using sensors, we measure the concentration of multi-gas in terms of parts per million (PPM) and quality of temperature and humidity. Therefore, by analyzing the values of concentration the system alerts the users through global system for mobile communication (GSM) when the concentration values exceeds standard value. The communication between users and system made easier by connecting global positioning system (GPS) to the system, where the GPS interfaced with GSM shares location address of the system when pollution exceeds standard value. Our system has feature for the users to live monitor the concentrations of multi-gas and air quality through zig-bee transmission. The concentrations in the environment to be monitored are chosen as carbon monoxide, methane, liquid petroleum gas (LPG) and quality represents temperature and humidity. With this developed system it effectively supports for betterment of environment through analytics.

Keywords: Air pollution, Multi-gas, Air quality, GSM-GPS interface, Zig-Bee transmission.