Crowdsourcing Air Pollution Data Aquisition Module

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One of the challenges currently facing the global community today is air pollution. This problem will increase as cities continue to grow in size and increases urban sprawling, This will then lead to greater transportation needs. With an increase in transportation services there will be an increase in air pollution, which will have a detrimental effect on a population in terms of deteriorating public health, increased medical spending, and lost working hours. This is a complex problem that will require a solution with many unique parts to solve. The purpose of this presentation is to introduce, as part of the solution, a way of engaging the global community in gathering air pollution data. This solution is a small weatherproof module that is capable of displaying ozone and particulate matter levels on a small LCD screen as well as uploading data to the cloud. The module has been developed in the form of a 'shield' for the popular Arduino microcontroller platform, this will enable an individual with little or no scientific or engineering background to install and use the module. A solution of this nature will generate an increase in bottom-up citizen science efforts to monitor and report various pollution levels occurring in their communities. The ultimate goal for this project is to engage the world community in air pollution monitoring and research through crowdsourcing. The relatively low cost and ease-of-use will allow the global community to take part in ozone and particulate matter data acquisition anywhere a wifi network is available. Once data has been acquired it will be transmitted via a small onboard wifi module to a repository such as Mathworks' Thingspeak service. The presentation will focus on the ideas behind the solution such as crowdsourced science, data storage possibilities, and the effects of air pollution on health.

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