Evaluating Pollution Concentrations with a Drone

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Introduction The purpose of this experiment is to bring awareness to air pollution. In recent years news reportings on severe wildfires, such as the California and Texas wildfires, has focused on the millions of dollars in damage. But, those fires have also released dangerous levels of PM2.5 into the air. Some of the negative health effects that PM2.5 causes are coughing, shortness of breath, and irritation of the eyes, nose, and throat. Problem Statement The hypotheses for this experiment was if PM2.5 is in my test area, then concentrations will be greater at ground level. Procedures To test my hypothesis I used a home-built drone, with an Airbeam (PM2.5 monitor) secured on top. I collected air samples at ground level and at 30 meters in the sky. Results The data showed that there was an average of about 8 microg/m?3? more PM2.5 at a height of 30 meters than at ground level. Conclusion The objectives and design criteria were met. This experiment could help map PM2.5 levels at a lower cost and potentially could save lives by informing people of any dangerous levels near them.

Awards Won: