

ABSTRACT

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Title: Utilization of IOT Sensors To Gather and Analyze Air Pollutant Data
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In this research, our main objective is to produce air pollution statistics on Southern Connecticut State University's campus and determine an effective modeling method to predict this pollution. Air pollution is a threat to health and climate on a global scale, but has also become a local social justice issue in New Haven, CT. This project will help us comprehend this crisis on a local scale with continuous data on the pollutants being produced on campus. We utilize an IoT device from Airly that allows us to gather and transmit data utilizing the decentralized network of Helium. We use meteorological data including temperature and humidity with PM 2.5 measurements for our modeling. Our models help us identify correlations between this meteorological data and the actual pollutant measurements. We produce evidence that Artificial Neural Networks and Genetic Programming produce promising predictive results of this data compared to our traditional modeling methods of Linear and Quadratic Regression. We hope that this research will begin the monitoring and prediction of air pollution within Southern Connecticut State University's campus to hopefully minimize exposure to students in the near future.