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Hardware-Software Co-design of a Smart IoT Device for Monitoring Short-term Exposure to Air Pollution Peaks

Air pollution spikes have been causing harm to human beings and the environment. Most exposure to Air pollution spikes has demonstrated a great impact on mental health, especially for children at an early age. That can lead to suicide or depression. Most existing research has been concentrated on air pollution in general. Existing monitoring systems are based on capturing the pollutants without being based on peaks. This paper presents the co-design of the hardware and software for IoT for monitoring spikes of air pollution. The system will be composed of two technologies such as edge computing to capture short-term exposure and machine learning for analyzing the captured data. This system will ensure the presence of the spikes start and end. The system will be able to alert the presence of spikes in air pollution. After the analysis, legislators will be based on smart contracts to reduce the peak of pollution based on its source.

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