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Using IoT Sensors to Assess the Impact of Wood Heating on Air Quality

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Heating by burning wood was one of the main methods used by people from ancient times until the dawn of industrialization. This is explainable because wood is a renewable and readily available resource. Environmental policies are currently trying to lead to abandonment of this heating method for reasons related to the polluting emissions of the combustion process. However, in rural areas, wood-burning stoves are still widely used for heating homes and even for cooking. Natural gas or electric furnaces are solutions that are not available or accessible in small communities, not all small towns are connected to the natural gas distribution network and electricity is expensive for heating. This paper aims to evaluate the effect of burning wood for heating on the air quality in the vicinity (indoor and outdoor) by using a monitoring network of IoT sensors. The study of this heating method does not enjoy a major interest in the scientific field because it is considered that burning wood will soon disappear as a heating method, but in reality this method is still widely used in the rural environment and will be used in the isolated communities for a long time to come. This motivates the current study.

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