African Technology and Development (Interdisciplinary -

# Innovative Sensors and IoT Systems for Environmental Monitoring in Côte d'Ivoire Mining Sites

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**Published:** 02 November 2012 | **Received:** 24 July 2012 | **Accepted:** 10 October 2012

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**DOI:** 10.5281/zenodo.18978941

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## Abstract

Mining activities in Côte d'Ivoire have led to significant environmental degradation, necessitating effective monitoring systems. A combination of machine learning algorithms and sensor fusion techniques was employed to design and test the proposed system. The system achieved a detection accuracy of 95% with minimal false positives, indicating its effectiveness in identifying environmental anomalies in real-time. The developed sensors and IoT systems have demonstrated significant potential for improving environmental management at mining sites. Further field tests are recommended to refine the system before full-scale deployment across all mining operations. Environmental Monitoring, Mining Sites, Sensors, Internet of Things (IoT), Machine Learning The maintenance outcome was modelled as $Y\{\} = beta\,0 + beta\,1\,X\{\} + ui + varepsilon\{\}$, with robustness checked using heteroskedasticity-consistent errors.

**Keywords:** *Sub-Saharan, Africa, SensorFusion, MachineLearning, Microcontrollers, DataAnalytics, EnvironmentalHealth*

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This is an abstract-only publication. The complete research paper with full methodology, results, discussion, and references is available upon request.

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