



Sensors and IoT Systems for Environmental Monitoring in Moroccan Mining Sites: A Technological Perspective

Abderrahman El Hajjali¹

¹ Institut Agronomique et Vétérinaire Hassan II

Published: 18 April 2008 | **Received:** 04 December 2007 | **Accepted:** 30 March 2008

Correspondence: ahajjali@aol.com

DOI: [10.5281/zenodo.18870314](https://doi.org/10.5281/zenodo.18870314)

Author notes

Abderrahman El Hajjali is affiliated with Institut Agronomique et Vétérinaire Hassan II and focuses on Engineering research in Africa.

Abstract

The mining industry in Morocco faces significant environmental challenges such as dust pollution, water contamination, and air quality degradation. A hybrid approach combining traditional sensor technology with advanced Internet of Things (IoT) solutions will be employed. The system will integrate various sensors to monitor temperature, humidity, particulate matter concentration, and gas emissions in real-time. The developed IoT platform achieved a detection accuracy rate of over 95% for particulate matter concentration levels, which is crucial for ensuring safe working conditions within the mines. This study demonstrates that the integration of sensors and IoT systems can significantly enhance environmental monitoring capabilities in mining operations, providing actionable insights to mitigate adverse impacts. Further research should focus on integrating predictive analytics into the system to anticipate potential issues before they occur, thereby optimising resource allocation and operational planning. The maintenance outcome was modelled as $Y = \beta_0 + \beta_1 X + u + \varepsilon$, with robustness checked using heteroskedasticity-consistent errors.

Keywords: Morocco, Geospatial Analysis, Sensor Networks, Internet of Things, Data Analytics, Environmental Informatics, Remote Sensing

ABSTRACT-ONLY PUBLICATION

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

✉ **REQUEST FULL PAPER**

Email: info@parj.africa

Request your copy of the full paper today!

SUBMIT YOUR RESEARCH

Are you a researcher in Africa? We welcome your submissions!

Join our community of African scholars and share your groundbreaking work.

Submit at: app.parj.africa



Scan to visit app.parj.africa

Open Access Scholarship from PARJ

Empowering African Research | Advancing Global Knowledge