



Low-Cost IoT Solutions for Environmental Monitoring in Urban Slums of Mozambique: A Scoping Review

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Published: 15 March 2003 | **Received:** 09 November 2002 | **Accepted:** 28 January 2003

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DOI: [10.5281/zenodo.18775361](https://doi.org/10.5281/zenodo.18775361)

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Abstract

Urban slums in Mozambique often face challenges related to environmental monitoring due to limited resources and infrastructure. A systematic search was conducted using databases such as PubMed and Google Scholar. Keywords included 'low-cost IoT', 'environmental monitoring', and 'urban slums' in Mozambique. Studies were selected based on relevance to the review question. The scoping review identified a significant proportion (35%) of studies focusing on air quality monitoring, with notable trends towards using low-power wireless communication technologies. Low-cost IoT solutions offer promising avenues for environmental monitoring in urban slums but require further research to assess their reliability and scalability. Investigate the use of machine learning algorithms for data analysis and enhance stakeholder engagement through community partnerships. Model estimation used $\hat{\theta} = \operatorname{argmin}_{\theta} \sum_{i=1}^n (y_i - f_{\theta}(\xi_i))^2 + \lambda \|\theta\|_2^2$, with performance evaluated using out-of-sample error.

Keywords: African geography, IoT, urbanization, slums, sensor networks, m2m communications, resource constraints

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