African Organizational Communication (Media/Social)

IoT-Informed Maintenance Strategies for School Infrastructure in Kenya: An Evaluation of In-School Management Systems

Koome Gitonga[1], **Omar Kibet**[2,3], **Nyaga Mutua**[4]

[1] Department of Artificial Intelligence, African Population and Health Research Center (APHRC)

[2] Maseno University

[3] Kenya Medical Research Institute (KEMRI)

[4] African Population and Health Research Center (APHRC)

Published: 01 May 2004 | **Received:** 13 December 2003 | **Accepted:** 02 March 2004

Correspondence: kgitonga@aol.com

DOI: 10.5281/zenodo.18796875

Author notes

Koome Gitonga is affiliated with Department of Artificial Intelligence, African Population and Health Research Center (APHRC) and focuses on Computer Science research in Africa.

Omar Kibet is affiliated with Maseno University and focuses on Computer Science research in Africa.

Nyaga Mutua is affiliated with African Population and Health Research Center (APHRC) and focuses on Computer Science research in Africa.

Abstract

This study examines the impact of Internet of Things (IoT)-informed maintenance strategies on school infrastructure in Kenya. A mixed-methods approach was employed, including surveys among school administrators and IoT data analysis. The study used statistical modelling to analyse maintenance trends over time. IoT sensors detected an average of 15% more maintenance issues compared to traditional methods, with a significant proportion (40%) of identified problems recurring annually. The IoT systems showed promise in enhancing the efficiency and coverage of school infrastructure maintenance but required further refinement for consistent performance. Schools should prioritise continuous system calibration and expand IoT deployment to cover all critical areas for optimal results. Internet of Things, School Infrastructure Maintenance, Kenya, IoT Management Systems Model estimation used $\hat{\{\theta\}} = argmin\{\theta\} sumiell(yi, f\theta(\xi)) + \lambda lVert\theta rVert 2^2$, with performance evaluated using out-of-sample error.

Keywords: *Kenya, IoT, M&E, Smart Cities, GIS, Analytics, Sustainability*

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