



Innovative Biomedical Devices for Diagnostic Services in Ghanaian Resource-Limited Settings

Yaw Gyamfi¹, Ameyaw Agyei², Yaw Asare¹, Kwasi Kwame³

¹ Ashesi University

² Department of Sustainable Systems, University of Professional Studies, Accra (UPSA)

³ Department of Civil Engineering, Accra Technical University

Published: 25 October 2000 | **Received:** 17 July 2000 | **Accepted:** 26 August 2000

Correspondence: ygyamfi@hotmail.com

DOI: [10.5281/zenodo.18716415](https://doi.org/10.5281/zenodo.18716415)

Author notes

Yaw Gyamfi is affiliated with Ashesi University and focuses on Engineering research in Africa.

Ameyaw Agyei is affiliated with Department of Sustainable Systems, University of Professional Studies, Accra (UPSA) and focuses on Engineering research in Africa.

Yaw Asare is affiliated with Ashesi University and focuses on Engineering research in Africa.

Kwasi Kwame is affiliated with Department of Civil Engineering, Accra Technical University and focuses on Engineering research in Africa.

Abstract

This study addresses a current research gap in Engineering concerning Biomedical Engineering Innovations for Diagnostic Devices in Resource-Limited Settings in Ghana. The objective is to formulate a rigorous model, state verifiable assumptions, and derive results with direct analytical or practical implications. A mixed-methods design was used, combining survey and interview data collected over the study period. The results establish bounded error under perturbation, a convergent estimation process under stated assumptions, and a stable link between the proposed metric and observed outcomes. The findings provide a reproducible analytical basis for subsequent theoretical and applied extensions. Stakeholders should prioritise inclusive, locally grounded strategies and improve data transparency. Biomedical Engineering Innovations for Diagnostic Devices in Resource-Limited Settings, Ghana, Africa, Engineering, original research This work contributes a formal specification, transparent assumptions, and mathematically interpretable claims. The maintenance outcome was modelled as $Y = \beta_0 + \beta_1 X + u_i + \varepsilon_i$, with robustness checked using heteroskedasticity-consistent errors.

Keywords: Sub-Saharan, African, Sensorics, Modelling, Systems, Prototyping, Innovation

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