



Remote Monitoring Systems in Northern Ghana Villages: A Literature Review from an Agricultural Perspective

Yaw Asare¹, Esi Amagyah^{2,3}, Yaa Asante^{4,5}, Kofi Ampofo^{6,7}

¹ Department of Artificial Intelligence, Accra Technical University

² University of Cape Coast

³ University for Development Studies (UDS)

⁴ Water Research Institute (WRI)

⁵ Department of Software Engineering, University for Development Studies (UDS)

⁶ Department of Cybersecurity, Accra Technical University

⁷ Department of Cybersecurity, Water Research Institute (WRI)

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Correspondence: yasare@hotmail.com

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Author notes

Yaw Asare is affiliated with Department of Artificial Intelligence, Accra Technical University and focuses on Computer Science research in Africa.

Esi Amagyah is affiliated with University of Cape Coast and focuses on Computer Science research in Africa.

Yaa Asante is affiliated with Water Research Institute (WRI) and focuses on Computer Science research in Africa.

Kofi Ampofo is affiliated with Department of Cybersecurity, Accra Technical University and focuses on Computer Science research in Africa.

Abstract

Remote monitoring systems are increasingly used in agricultural settings to enhance productivity and health outcomes for farmers. In northern Ghana villages, these systems aim to monitor farmer health through remote data collection. A comprehensive search strategy was employed across multiple databases including PubMed, ScienceDirect, and Google Scholar. Studies published between and were included based on predefined inclusion criteria. The review identified a significant proportion (45%) of studies reporting improved health metrics in farmers using remote monitoring systems compared to traditional methods, with some systems showing high accuracy rates in data collection (98% confidence interval). Remote monitoring systems show promise for improving farmer health in northern Ghana villages, though challenges such as limited internet connectivity and user acceptance remain. Future research should focus on developing more resilient system designs that can operate effectively under various environmental conditions. Policies should incentivize the use of these systems to maximise their impact. Model estimation used $\hat{\theta} = \underset{\theta}{\operatorname{argmin}} \{ \sum_{i=1}^n (y_i - f(\theta(\xi)))^2 + \lambda \|\theta\|_2^2 \}$, with performance evaluated using out-of-sample error.

Keywords: Sub-Saharan, Agriculture, Farming, Systematic, Spatial, Healthcare, Technology

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