African Robotics and Autonomous Systems

Drone Delivery in Remote Ethiopian Villages: Enhancing Telemedicine Access and Outcomes

Finbarr Feyissa[1,2], **Berhanu Berihun**[3], **Addis Abeba**[4,5], **Tesfaye Tsehaye**[4,6]

[1] Department of Artificial Intelligence, Hawassa University

[2] Jimma University

[3] Department of Data Science, Hawassa University

[4] Hawassa University

[5] Mekelle University

[6] Ethiopian Institute of Agricultural Research (EIAR)

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Correspondence: ffeyissa@yahoo.com

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Author notes

Finbarr Feyissa is affiliated with Department of Artificial Intelligence, Hawassa University and focuses on Computer Science research in Africa.

Berhanu Berihun is affiliated with Department of Data Science, Hawassa University and focuses on Computer Science research in Africa.

Addis Abeba is affiliated with Hawassa University and focuses on Computer Science research in Africa.

Tesfaye Tsehaye is affiliated with Ethiopian Institute of Agricultural Research (EIAR) and focuses on Computer Science research in Africa.

Abstract

Telemedicine has been recognised as a critical tool for improving healthcare access in remote areas of Africa. However, challenges such as distance and infrastructure limitations continue to hinder its effectiveness. A mixed-methods approach was employed, including pre- and post-intervention assessments of telemedicine service utilization in randomly selected villages. Drone deliveries were tracked using GPS coordinates and time-stamped delivery logs. In one village with drone delivery services implemented, the proportion of patients receiving follow-up consultations increased from 20% to 45%, demonstrating significant improvements in patient engagement and outcomes. The integration of drone technology into telemedicine practices has shown promise for enhancing access and improving healthcare quality in remote Ethiopian villages. Further research should investigate the long-term sustainability and scalability of drone delivery systems within different socio-economic contexts. Telemedicine, Drone Delivery, Remote Healthcare, Ethiopia Model estimation used $\hat{\{}\theta\}=argmin\{\theta\}sumiell(yi,f\theta(\xi))+\lambda lVert\theta rVert2^{2}$, with performance evaluated using out-of-sample error.

Keywords: *Remote Health Access, Telemedicine Delivery Systems, Geographic Information Systems (GIS), Precision Agriculture, Unmanned Aerial Vehicles (UAVs)*

ABSTRACT-ONLY PUBLICATION

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