JOMO KENYATTA UNIVERSITY OF AGRICULTURE AND TECHNOLOGY

BSc. COMPUTER TECHNOLOGY

EQUAL TRADE RESEARCH PAPER

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EqualTrade: An Inclusive E-commerce Platform for Artisans with Disabilities

1. Introduction

The digital revolution has transformed commerce, enabling artisans and entrepreneurs to reach global markets through online platforms. However, individuals with disabilities face significant barriers to participating in e-commerce due to a lack of accessible platforms, limited technological inclusivity, and societal stigmatization. Existing platforms, such as Etsy and Jumia, do not sufficiently accommodate the needs of artisans with visual or intellectual impairments, preventing them from leveraging digital entrepreneurship for economic empowerment.

This research focuses on EqualTrade, an inclusive e-commerce platform designed to bridge the accessibility gap, allowing artisans with disabilities to showcase and sell their handmade products seamlessly. The study aims to evaluate the effectiveness of assistive technologies in e-commerce and develop a scalable, accessible solution that fosters financial independence for artisans with disabilities.

2. Problem Statement

Despite advancements in digital marketplaces, artisans with disabilities in Kenya face multiple barriers in selling their products online. The lack of accessible user interfaces, absence of assistive technologies, and high commission fees in existing e-commerce platforms contribute to their exclusion from the digital economy. This research seeks to address the following key challenges:

- Limited accessibility: Most platforms are not designed for users with visual or cognitive impairments, making navigation difficult.
- Technological barriers: The absence of voice commands, screen reader support, and simplified UI limits usability for disabled artisans.
- Financial constraints: High commission fees on mainstream platforms reduce artisans' profitability, making digital trade unsustainable.
- Low market visibility: Artisans with disabilities struggle with branding, product showcasing, and customer engagement, reducing their competitiveness.

By addressing these challenges, EqualTrade aims to provide a barrier-free e-commerce experience that fosters economic inclusion for artisans with disabilities.

3. Research Objectives

This study aims to:

1. Investigate the barriers faced by disabled artisans in accessing digital marketplaces.
2. Develop an inclusive e-commerce platform incorporating assistive technologies such as voice commands, screen readers, and simplified navigation.
3. Assess the platform's usability, scalability, and effectiveness through real-world testing.
4. Provide recommendations for improving digital accessibility in e-commerce platforms for people with disabilities.

4. Research Questions

This study seeks to answer the following questions:

- What are the key accessibility challenges preventing artisans with disabilities from utilizing existing e-commerce platforms?
- How can assistive technologies enhance the usability of e-commerce platforms for individuals with disabilities?
- What design features are necessary to make EqualTrade both functional and inclusive for artisans with different disabilities?
- How can EqualTrade increase market visibility and financial sustainability for disabled artisans?

5. Literature Review

Prior research highlights the importance of accessibility in digital commerce, particularly for marginalized groups. Studies show that integrating assistive technologies, such as speech-to-text, screen magnification, and guided navigation, significantly improves usability for disabled individuals (Kirkpatrick et al., 2021). Additionally, research on socially responsible shopping trends indicates a growing demand for inclusive, ethical marketplaces (Smith et al., 2023).

However, there remains a gap in practical implementation of these features in mainstream e-commerce. Most existing platforms prioritize profitability over accessibility, neglecting the needs of artisans with disabilities. This study builds on previous research by developing and testing a fully accessible, inclusive e-commerce model, providing empirical insights into the effectiveness of assistive technologies in digital entrepreneurship.

6. Methodology

This research will employ a mixed-method approach, combining qualitative and quantitative methods for comprehensive analysis.

6.1. Data Collection

1. Surveys and Interviews:
    - Conduct structured interviews with 50 artisans with disabilities to assess their challenges, digital literacy levels, and e-commerce experiences.
    - Administer customer surveys to gauge demand for socially responsible and inclusive shopping platforms.
2. Competitor Analysis:
    - Evaluate existing e-commerce platforms (Etsy, Jumia, Zazzle) to identify accessibility gaps and best practices.
3. User Testing:
    - Implement prototype testing with artisans with disabilities to refine platform design, accessibility features, and functionality.

6.2. System Development

The EqualTrade platform will be developed using the following technological framework:

- Frontend: HTML5, CSS3, JavaScript, React.js (for responsive, modular UI).
- Backend: Node.js, Express.js, MongoDB (for secure, scalable data handling).
- Assistive Technologies:
    - Speech recognition API (e.g., Google Web Speech API) for voice navigation.
    - Text-to-speech API for real-time audio guidance.
    - ARIA accessibility attributes for screen readers and adaptive text.
- Security and Payments: Secure transaction handling through mobile money, QR codes, and NFC payments.

6.3. Data Analysis

- Qualitative Analysis: Thematic coding of interviews and user feedback to identify common accessibility challenges.
- Quantitative Analysis: Statistical evaluation of survey responses and user testing data to measure improvements in usability, transaction efficiency, and customer engagement.

7. Expected Outcomes

This study will result in:

1. A fully functional, accessible e-commerce platform tailored for artisans with disabilities.
2. Improved digital literacy and financial independence for artisans through training and platform adoption.
3. Empirical insights into the role of assistive technologies in e-commerce.
4. Recommendations for accessibility standards in online marketplaces, contributing to policy discussions on digital inclusivity.

8. Timeline

Given the March–April deadline, this study will follow an accelerated two-month implementation plan:

Phase	Duration	Activities
Research & Planning	2 weeks	Market research, competitor analysis, user needs assessment
Design & Development	3 weeks	UI/UX design, prototype creation, assistive tech integration
Testing & Iteration	2 weeks	Usability testing, bug fixes, user feedback incorporation
Deployment & Evaluation	1 week	Launch platform, collect and analyze user feedback

9. Significance of the Study

This research will enhance digital inclusivity, providing artisans with disabilities an accessible, scalable, and sustainable platform for e-commerce. The study contributes to:

- Technology innovation: Advancing assistive tech integration in digital marketplaces.
- Economic empowerment: Enabling financial independence for disabled artisans.
- Social impact: Promoting equitable participation in digital trade.

10. Conclusion

This study proposes a pioneering solution to a critical gap in digital accessibility. By developing EqualTrade, this research will empower artisans with disabilities, offering them an inclusive, technology-driven marketplace. The findings will also inform policy and future digital accessibility initiatives, ensuring e-commerce platforms become barrier-free and universally accessible.