SCHOOL OF TECHNOLOGY

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SOFTWARE COMPUTING PROJECT

BSD 3106

BORDER SECURITY AND CUSTOMS MANAGEMENT SYSTEM

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Contents

1 INTRODUCTION

1.1 BACKGROUND

Cross-border trade has always been a pivotal driver of economic growth and development, creating bridges between nations and fostering international cooperation. However, the complexities and challenges inherent in cross-border transactions have often hindered the full realization of its potential benefits. Traders, particularly those operating in border regions, frequently encounter obstacles related to customs procedures, document processing, currency exchange, and timely information access.

In many regions, these challenges have persisted for generations, impeding the efficiency of trade and impacting the livelihoods of countless individuals and communities. Recognizing the urgent need for a transformative solution, the Border Connect System emerges as a visionary initiative aimed at revolutionizing the landscape of cross-border trade.

1.2 PURPOSE

The purpose of Border Connect is to revolutionize cross-border trade by simplifying procedures, providing essential information, and fostering collaboration among traders. This project aims to promote regional economic growth by addressing trade-related challenges, enhancing information access, and supporting trader communities. It seeks to create a user-friendly and efficient platform that empowers traders and strengthens cross-border trade relationships while adapting to changing trade conditions. Ultimately, Border Connect's purpose is to contribute to a more prosperous and resilient future for border regions and international trade.

1.3 PROBLEM STATEMENT

Cross-border trade faces persistent challenges including complex customs procedures, documentation requirements, currency exchange issues, and limited access to timely information. These obstacles hinder trade efficiency and regional economic growth. Traders grapple with compliance complexities, resulting in delays, administrative burdens, and increased costs. The absence of accessible information leaves traders ill-equipped to adapt to changing conditions, and the lack of a supportive community isolates them further. Currency exchange adds uncertainty and risk. The Border Connect Project aims to revolutionize cross-border trade by

streamlining procedures, providing up-to-date information, and fostering collaboration, addressing these challenges comprehensively.

1.4 PROPOSED SOLUTION

The proposed solution is creating a web application to address challenges faced at the border, particularly in regions like Busia border which can have a significant positive impact on trade and economic development.

The Border Connect Project is a dynamic digital platform designed to transform cross-border trade. It addresses trade challenges through the following key features:

1. **Streamlining Cross-Border Trade**:
   Simplify and expedite cross-border trade procedures to reduce administrative burdens and delays for traders.
2. **Enhancing Information Access:**
   Establish a centralized platform that provides up-to-date customs regulations, trade policies, and documentation requirements for border regions.
3. **Fostering Collaboration:**
   Create an online community within the platform where traders can exchange information, share experiences, and seek advice from experts and peers.
4. **Efficiency Enhancement**:
   Provide tools and features to improve trade efficiency, including electronic document submission, currency conversion, and real-time trade alerts.
5. **Supporting Economic Growth**:
   Contribute to economic growth in border regions by promoting increased cross-border trade, job creation, and regional development opportunities.

This solution aims to enhance efficiency, access to information, and collaboration while promoting regional economic growth by removing trade obstacles. Border Connect is positioned to empower traders and foster prosperity in border regions.

1.5 SCOPE

1.5.1 Project Objectives

1.5.1.1 Main Objective

The main objective of the Border Connect Project is to streamline cross-border trade, reduce trade-related challenges, and promote economic growth in border regions. In essence, the project

seeks to make international trade more efficient, accessible, and supportive for traders while contributing to the economic development of areas located along international borders

1.5.1.2 Specific Objectives

The Border Connect Project aims to achieve the following specific objectives:

1. **Customs Information Hub**
   Centralizes customs regulations and trade policies for easy access.
2. **Streamlined Document Processing**
   Enables electronic submission, reducing paperwork and delays.
3. **Currency Conversion Tool**
   Provides real-time exchange rates for confident currency transactions.
4. **Trade Documentation Templates**
   Simplifies paperwork with pre-filled templates.
5. **Collaboration and Support**
   Builds a community for traders to share knowledge and experiences.
6. **Trade Alerts and Notifications**
   Keeps users informed about trade-related changes.
7. **Feedback and Reporting Mechanism**
   Allows users to provide feedback and report issues for continuous improvement.

1.5.2 Features and Functionalities

The Border Connect platform will have the following core features and functionalities:

1. **Customs information hub** that will provide up-to-date customs regulations, procedures, and documentation requirements for both imports and exports.

2. **Document Submission and processing** that will enable traders to electronically submit and process trade documents, including customs declarations, certificates of origin, and invoices.

3. **Trade Alerts and Notifications** that will send notifications to users about changes in customs regulations, trade policies, or border security measures.

4. **Currency Converter** to help traders manage transactions involving different currencies, with up-to-date exchange rates.

5. **Trade Documentation Templates** that will Offer pre-filled templates for common trade documents, simplifying paperwork and reducing errors.

6. **Collaboration and Support** to help create an online community where traders can exchange information, share experiences, and seek advice from experts and fellow traders.

7. **Feedback and Reporting** that will allow users to provide feedback on their border trade experiences and report issues, which can be used for continuous improvement of the system.

1.5.3 Project Phases

The project will be executed in the following phases:

1. **Planning and Preparation**
   Detailed project planning, resource allocation, stakeholder engagement, and requirement gathering.
2. **Development**
   Creation of the Border Connect platform, including the integration of features and functionalities.
3. **Testing and Quality Assurance**
   Rigorous testing to ensure the platform's functionality, security, and user-friendliness.
4. **Launch and User Training**
   Rollout of the system to traders and stakeholders, accompanied by user training and support.
5. **Monitoring and Maintenance**
   Ongoing system monitoring, user support and regular updates to ensure optimal performance and user satisfaction.

1.5.4 Monitoring and Evaluation

To ensure the project's success, key performance indicators (KPIs) will be established and regularly monitored to assess the platform's impact, user satisfaction, and effectiveness in streamlining cross-border trade.

This specific project scope outlines the objectives, features, phases, budget, timeline, and monitoring mechanisms for the Border Connect Project, providing a comprehensive overview of its scope and goals.

2 LITERATURE REVIEW

- This literature review aims to explore the existing body of knowledge related to cross-border trade, focusing on the challenges faced at the customs by traders, the role of technology in simplifying trade processes, and the impact of streamlined trade on regional economic growth**.**
- Border clearance processes by customs and other agencies are among the most important and problematic links in the global supply chain.
- It takes three times as many days, nearly twice as many documents, and six times as many signatures to import goods in poor countries than it does in rich ones.
- Delays and costs at the border undermine a country's competitiveness, either by taxing imported inputs with deadweight inefficiencies or by adding costs and reducing the competitiveness of exports.

SIMILAR EXISTING SYSTEMS

- **Canada Border Services Agency (CBSA) Advance Commercial Information (ACI)**:

- ACI is Canada's counterpart to ACE, requiring advanced submission of cargo and conveyance data for risk assessment and border clearance.

- **China's National Immigration Administration (NIA) Systems**:
- - China has various systems for border security and customs management, such as the Advance M**Cross-Border Trade Facilitation Platforms**:

- Organizations and platforms, such as the United Nations Centre for Trade Facilitation and Electronic Business (UN/CEFACT), work on global trade facilitation standards and initiatives to simplify cross-border processes.

- **Automated Border Control (ABC) Systems**:

- Many countries, including the United States, Canada, and various European nations, have implemented ABC systems at airports and border crossings. These systems use biometric data (e.g., facial recognition, fingerprints) for expedited passport control.

- These examples highlight the diversity and complexity of border security and customs management systems, each designed to address the specific challenges and requirements of their respective regions.

- The effectiveness of these systems often relies on the integration of advanced technologies, data sharing, and international cooperation to ensure both security and efficiency at border crossings

CONCLUSION

- The literature review highlights the challenges faced by traders engaged in cross-border trade, the role of technology in addressing these challenges, the importance of community building, and the positive impact of efficient trade on economic growth.
- These insights serve as a foundation for the Border Connect project, which aims to streamline cross-border trade, promote economic development in border regions, and harness technology to enhance the efficiency of international commerce.

anifest System for international cargo and the Entry-Exit System for managing traveler data.

3 METHODOLOGY

3.1 DATA COLLECTION METHODS

1. **Interviews**

Random individuals were selected and interviewed from the customs

The findings were:-

1. Some individuals were not up to date with the customs regulations.
2. A lot of fraud occurs around the border due to lack of information
3. Most individuals are not well informed.

2. **Observations**

Observations were made when some individuals were taken to the customs to process there documents in order to enter the Uganda border.

The finds were that:-

1. The process was rather time consuming
2. Some individuals did not have all the required documentations
3. Some individuals were not well informed of the process
4. The currency converters took advantage of those who were not well informed.

3. Questionnaires

Questionnaires were distributed to individuals and also the workers in customs. Although the results cannot be highly relied on some conclusions were still made

The findings were:-

1. The entire process is tiring and time consuming
2. Lack of information is a big problem for the traders
3. People are not able to trust others since they have been deceived before.

3.2 DATA ANALYSIS METHODS

1. **Quantitative analysis** – will look at the statistics, percentages, and calculations. All the data collected will be put into numerical values to understand more about how to create the database.

2. **Qualitative analysis** – this is content analysis and will be concentrating on the data collected from the customers which are mostly non-numerical.

3.3 DEVELOPMENT METHODOLOGY

The development methodology that will best suit this project is agile methodology.

ADVANTAGES OF AGILE METHODOLOGY

1. Flexibility and Adaptability
2. Customer-Centric
3. Iterative Development
4. Faster Time-to-Market
5. Enhanced Collaboration
6. Reduced Risk of Project Failure
7. Continuous Improvement
8. Effective Resource Utilization

DISADVANTAGES OF AGILE METHODOLOGY

1. Less predictable. The flexibility at the core of the Agile method also means a much lower degree of predictability.
2. More time and commitment.
3. Greater demands on developers and clients.
4. Lack of necessary documentation.
5. Projects easily fall off track

3.3.1 Requirement specification

Requirement collection will be done virtually through scheduled meetings using a platform like Google Meet. But in some cases, physically traveling to the place will be required.

Hardware Requirements

- Hard Disk – 5 GB
- Memory – 8 GB RAM
- Laptop
- Smartphone
- Laser Printer

Software Requirements

- Windows 10
- Database Management Systems
- User Interfaces and dashboards
- Data storage and backup solutions

4 BUDGET

The total budget for the Border Connect Project is [Total Budget], covering development, testing, launch, training, maintenance, and ongoing operational costs.

Item	Quantity	Estimated costs (Kshs)small company	Actual Cost (Kshs)small company	Estimated costs (Kshs)large company	Actual Cost (Kshs)large company
Smartphone	3- 10	30000		90000	
Printer	1 – 4	60000		200000	
Laptop	1-4	42000		120000	

Travel expenses		500		3000	
Accommodations		1000		1000	
Total		133500		414000	

5 PROJECT PLAN

Task No.	Description	Task Time line	Sub task Time line	Planned Start Date	Actual Start Date	Planned Completion Date	Actual Completion date	Deliverables
1.	Planning	1 month	12hrs	22/9/23	24/9/23	22/10/23	24/10/23	Budget and schedule was decided on
2.	Purchasing of Items	7 days	12hrs	24/10/23		1/11/23		Computer and mobile phone were purchased
3.	System Documentation	2 months	5days	3/11/23		7/11/23		Proposal, SRS and SDS Documentations.
4.	System Design and development	1 month	7 days	9/11/23		9/12/23		UX UI design and developing the system

5.	System testing	3 weeks	1day	11/12/23		2/1/24		Testing of the system
6.	System implementation and maintenance	1 month		4/1/24		4/2/24		Implementing and maintaining the system
7.	System Deployment	2 weeks		6/2/24		22/2/24		Making the system available to users

6 RISK MANAGEMENT

The Border Connect Project is a critical initiative aimed at improving border security and facilitating the efficient movement of goods and people across national borders. This project involves the development and implementation of advanced technologies, infrastructure enhancements, and policy changes to achieve its objectives. Given the complex nature of this endeavor, effective risk management is essential to ensure its success. This Risk Management Plan outlines the approach to identifying, assessing, mitigating, and monitoring risks associated with the Border Connect Project.

6.1 Risk Management Process

6.1.1 Risk Identification

Internal Risks

1. **Technical Risks**
   Potential issues with the development and deployment of advanced technologies, including software bugs, integration problems, or hardware failures.
2. **Resource Constraints**
   Delays or budget overruns due to inadequate resources, such as personnel, equipment, or funding.
3. **Scope Creep**

Changes in project scope or objectives that are not properly managed, leading to increased complexity and potential delays.

4. **Regulatory Changes**
   Changes in border security regulations or policies that require adjustments to the project plan.
5. **Skills gap**
   When I the developer lacks some of the skills that are required in developing the project.
6. **Security Risks**
   Threats to the security of project data, systems, and infrastructure.

External Risks

1. **Political and Geopolitical Risks**
   Changes in international relations or political stability that may impact the project.
2. **Natural Disasters**
   Events such as earthquakes, floods, or wildfires that could disrupt project operations.
3. **Supply Chain Disruptions**
   Disruptions in the supply chain for project materials and components.
4. **Vendor or Supplier Risks**
   Dependence on external vendors or suppliers that may encounter issues.
5. **Market and Economic Risks**
   Economic downturns or fluctuations that affect project funding or viability.
6. **Legal Risks**
   Potential legal challenges or disputes related to the project.

6.1.2 Risk Assessment

For each identified risk, the following assessments will be conducted:

1. **Likelihood**

Assess the probability of the risk occurring on a scale of low, moderate, or high.

2. **Impact**

Evaluate the potential consequences of the risk on the project, including schedule delays, cost overruns, and reputational damage.

3. **Risk Priority**

Calculate the risk priority based on the product of likelihood and impact, and categorize risks as low, medium, or high priority.

6.1.3 Risk Mitigation

Risk Response Planning

Technical Risks

Conduct thorough testing and quality assurance processes. Implement redundancy and backup systems to minimize the impact of failures.

Resource Constraints

Regularly review resource allocation and secure additional resources when necessary.

Scope Creep

Maintain strict change control procedures and document all scope changes. Obtain necessary approvals for any scope modifications.

Regulatory Changes

Maintain close communication with relevant regulatory authorities and adapt to changes in a proactive manner.

Personnel Risks

Cross-train team members and have contingency plans for key roles.

Security Risks

Implement robust security measures, including encryption, access controls, and intrusion detection systems.

7 CONCLUSION

In conclusion, the Border Connect system presents a dynamic solution to the persistent challenges of cross-border trade. It addresses complex customs procedures, information gaps, and currency exchange issues through a user-centric digital platform. This proposal emphasizes the opportunity to enhance trade efficiency, empower traders, and stimulate economic growth in border regions. Border Connect is positioned to revolutionize international trade and build a bridge to prosperity for traders and border communities alike.

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