**PROJECT PROPOSAL**

**TOPIC: Development of an Automated Rate Clearance Certificate System for Masvingo City Council**

**OPTION: Software Development**

**1.1 Introduction**

The Masvingo City Council is responsible for issuing Rate Clearance Certificates (RCC), which are essential documents confirming that a property owner has settled all outstanding municipal rates and taxes before property transfer. However, the current manual process is inefficient, prone to errors, and causes delays. This proposal outlines the development of an Automated Rate Clearance Certificate System to streamline the process, improve transparency, and enhance service delivery.

**1.2 Brief Background Information**

Masvingo City Council currently relies on a paper-based system for processing RCC applications. This involves manual verification of payments, physical record-keeping, and lengthy approval workflows. Challenges include:

Delays in processing due to manual verifications.

Errors in record-keeping leading to disputes.

Lack of real-time tracking for applicants.

Fraud risks due to weak verification mechanisms.

An automated system will digitize the process, integrating with existing payment systems to provide instant verification and certificate generation.

**1.3 Literature Review (Gap Analysis)**

Existing studies highlight the inefficiencies of manual municipal processes (Chigwata et al., 2020). Similar systems in Harare and Bulawayo have adopted automation, reducing processing times by 70% (Moyo, 2022). However, gaps remain in:

Real-time integration with multiple payment platforms (Ecocash, ZIPIT, bank transfers).

Blockchain-based verification to prevent fraud (a feature not yet widely adopted in Zimbabwean municipalities).

Self-service portals for applicants to track progress.

This project will address these gaps by implementing a secure, real-time automated RCC system with blockchain-backed audit trails.

**1.4 Problem Definition**

The manual RCC issuance process at Masvingo City Council is:

Time-consuming (takes 7-14 days instead of the recommended 48 hours).

Prone to errors (mismatched records lead to disputes).

Lacks transparency (applicants cannot track progress).

Vulnerable to fraud (fake receipts and unauthorized alterations).

An automated system will resolve these issues by ensuring instant verification, digital certificates, and fraud-proof records.

**1.5 Aims and Objectives**

**Aim:**

To design and implement an Automated Rate Clearance Certificate System that improves efficiency, transparency, and security in Masvingo City Council.

**SMART Objectives:**

Develop a web-based RCC portal allowing applicants to submit, track, and download certificates (within 3 months).

Integrate real-time payment validation with Ecocash, ZIPIT, and bank APIs (achieving 95% accuracy in payment verification).

Implement blockchain-based audit logs to prevent tampering (ensuring 100% immutable records).

Reduce processing time from 14 days to under 24 hours (measured via system analytics).

Train council staff on system usage (ensuring 90% adoption rate within 2 months of deployment).

**1.6 Justification**

Efficiency: Automation reduces delays and manual errors.

Transparency: Applicants track progress in real-time.

Security: Blockchain prevents fraud and unauthorized changes.

Compliance: Meets Zimbabwe’s E-Government Strategy (2025) for digitizing municipal services.

This system introduces unique concepts such as:

✔ Blockchain-backed certificates (first in Zimbabwean municipalities).

✔ Multi-payment gateway integration (unlike current fragmented systems).

✔ Self-service applicant dashboard (not common in council processes).

**1.7 Methodology**

Methods:

Agile Development (iterative prototyping with stakeholder feedback).

User-Centered Design (interviews with council staff and applicants).

API Integration (Ecocash, banks, ZIMRA for tax clearance checks).

Blockchain (Hyperledger Fabric) for secure audit logs.

**Instruments:**

Surveys & Interviews (to gather user requirements).

UAT (User Acceptance Testing) before full deployment.

**1.8 Expected Results & Significance**

Faster RCC processing (under 24 hours).

Reduced fraud cases (via blockchain verification).

Improved citizen satisfaction (self-service tracking).

Cost savings (less paperwork, fewer disputes).

**Significance:**

Sets a benchmark for other municipalities.

Aligns with Zimbabwe’s Vision 2030 for digital transformation.

**1.9 Delimitations & Limitations**

**Delimitations:**

Focuses only on residential & commercial properties (not government land).

Excludes historical debt reconciliation (requires separate system).

**Limitations**:

Internet dependency (offline fallback may be needed).

Resistance to change (staff training crucial).

**1.10 Budget & Timelines**

Item Cost (USD)

Software Development $8,000

Blockchain Integration $3,000

API Licensing $2,000

Training $1,500

Total $14,500

Timeline:

Months 1-2: Requirement gathering & design.

Months 3-5: Development & testing.

Month 6: Deployment & training.

**1.11 Conclusion**

The proposed Automated Rate Clearance Certificate System will revolutionize Masvingo City Council’s operations by eliminating delays, reducing fraud, and improving transparency. With blockchain security, real-time payments, and self-service tracking, this project sets a new standard for municipal digitization in Zimbabwe.