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**A SMART YARD TAP METERING SYSTEM FOR NON-REVENUE WATER
REDUCTION THROUGH APPARENT LOSS MINIMIZATION**

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ABSTRACT

High level of water losses is one of the major challenges facing water utilities in the developing world from physical losses (leakage), theft of water from the system, or because water users are not properly billed. This difference between the amount of water put into the distribution system and the amount of water billed to consumers is known as Non-Revenue Water (NRW). This has a solemn effect on the financial growth of water utilities through lost revenue, lost water resources, and increased operational costs, reducing their capacity to fund other expansions of service, especially for those who cannot afford. Water utility companies have played a major role in developing, standardizing and obtaining methodologies for addressing NRW and It is widely acknowledged that NRW is a key indicator of a utility 's operational and financial performance.

However, water utility companies have not managed this problem because NRW has been given low priority by government officials, utility managers and the water sector in general. The years back NRW has been handled by following the convectional system where an employee in charge of running water bills moves to respective premises to read the corresponding water units that involved human errors, theft of water managed by involving police and this is backed up with corruption, WALOP force and use of the locals to report of any case.

The smart yard metering system that consists of postpaid and prepaid addresses this problem by calculating the water bills automatically and sending them to respective customers so that payments are carried out. For postpaid the concerned customer pays his bills after a specific period with the use of mobile money and for prepaid, a customer uses a tag with credit to fetch water. The system components are also protected from any tamper, water quality is monitored with water quality sensors and a report is made in case of any change. With this system non-revenue water will be handled effectively.

DECLARATION

I, JUWAN MALVIN, KISAKYE JOSEPHINE, OKONGO ERIC hereby declare that all the work material portrayed in this final year project is my original work except where explicit citation has been made and it has not been presented to any Institution of higher learning for any academic award.

Signature:

Date:

Signature:

Date:

Signature:

Date:

APPROVAL

This is to certify that the final year project under the title “Design and Construction of a smart yard tap metering system for non-revenue water reduction through apparent loss minimization.” was done under the best of our efforts and is now ready for examination.

Mr. Maseruka Benedicto

Department of Water and Mining Engineering

Sign:

Date:

LIST OF ACRONYMS

NWSC: National Water and Sewerage Corporation

WALOPU: Water Loss Prevention Unit

NRW: Non-Revenue Water

GSM: Global Systems for Mobile Communication

SMS: Short Message Service

LCD: Liquid Crystal Display

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