TOPIC: **PREPAID WATER SYSTEM**.

GROUP MEMBERS

|  |  |  |  |
| --- | --- | --- | --- |
| No | Full Names | Registration Number | Students Number |
| 1 | Ojok Simon Peter | 18/U/25554/EVE | 1800725554 |
| 2 | Nakisitu Resty | 18/U/25494/PS | 1800725494 |
| 3 | Nantambi Winfred | 18/U/25563/EVE | 1800725563 |
| 4 | Ayebare Muhire Enoch | 18/U/25557/EVE | 1800725557 |
| 5 | Kibirige Lawrence Junior | 18/U/25567/EVE | 1800725567 |

1. Introduction

This document presents documentation of above-mentioned project named prepaid water system. We are proposing to design a system which can be embedded on the existing water meter for customers of National Water and Sewage Cooperation, it will be responsible for taking bills, notifying the customer of available bills, and automatic disconnection and re-connection of the customer water in case they fail to pay their bill or paid respectively.

## 1.2 Problem Statement

National Water and Sewage Cooperation is the body responsible for the supply and management of piped water system in Uganda. Currently, the body uses analog meter where by their employees have to move from point to point take reading of the meter and at the end of month deliver bills to the respective customers indicating amounts they are supposed to pay. In case customers fail to pay the bills within a specified period of time, they are disconnected and upon paying, they get re-connected at a fee of UGX 10,000.

The prepaid water system will automate the above-mentioned problem by automatically taking bills, notifying the customers of the amount due through either by email or SMS and automatically disconnecting or re-connecting them back in case they fail to pay or paid respectively.

1.3 Aim and Objectives.

The major goal of this project is to plan, design, implement and develop a well-documented prepaid water system which will be able solve the problem statement mentioned above.

The project will also enable us to meet the requirement of course unit the Embedded System as per requirement Bachelor of Science in Computer Science.

The objective of this project is to develop as system that allow **National Water And Sewage Cooperation** to reduce on the money they spend on monitoring meter and taking water bills as well as delivering, disconnection and re-connection of tapped water. Once implemented, customers will be able to take full control of their water usage, and shall be able to monitor and pay bills get re-connected immediately.

## 1.4 Benefits

The customers of the National Water and Sewage Cooperation will gain the full control of their water as in they will be able to monitor water usage using their favorite devices. Since managers and engineers of NWSC are responsible for the effective and efficient running of the water distribution and sewage services, they will also gain from the system. They will be able to use devices to monitor water distribution.

The system will take away the burden off from the employee of National Water and Sewage Cooperation of moving door to door, street to street taking measurements, delivering bills at the end of the month and disconnecting or reconnecting some customers who fail to pay their bills

Due to automation of the system, customers will no longer pay re-connection fee and worry about the delay of their re-connection as the system will instantaneously do it just like YAKA for UMEME.

The Cooperation will be able to manage their water usage behind their desktop here by saving them money which would have been used for facilitating and paying on field employee who does the job which will be done by the system.

# 2. Methodology

The prepaid water system will make use of digital fluid meter which will be responsible for taking measurements, Arduino board, and GSM device which will communicate with the cooperation servers downloading amount of water in Liters a customer has paid for and uploading Liters the customers has used. The server will perform the rest of complicated tasks like emailing or sending SMS to customers.

The data that is to be collected will be viewed by the different possible sectors in the organization and the different user views include

1. Finance manager
2. Customers
3. Engineers
4. **Finance manager**

The finance manager in any organization has to take good account of the in and out flow of moneys in the organization. In this project, the system will work on the basic calculations and will have to display the various inflows of money as it will have to take record of the customers who have paid and the amount of money collected, it will also have to show the number of users in a given area and the amount of water that will be needed to supply the whole area. The system will also have to calculate the profits and losses incurred.

1. **Customers**

Customers will be able to receive messages on purchasing of the water they need. They can also take a survey on the amount of water they use in a given period. The transactions they have carried out so far; all that information will be availed to the users of the service.

Customers will be required to fill out forms as a prerequisite in order to change to the new system which will be giving them update information from the system i.e. low balances, etc.

1. **Engineers**

Engineers will be alerted in case there is a water shortage in a given area, also in case there is a system malfunction which will enable them get there fast and resolve the issue.

Engineers will be receiving data about customers, which are excellent customers in order to provide gifts and promotional offers exclusive to excellent customers thus increasing product reliability

# 3. Budget

The following is the estimated amount of money required to design, implement, test and deploy the prepaid water system

1. Arduino Board
2. Water Flow Sensor
3. 10k Resistor
4. Breadboard
5. Bluetooth
6. Battery

# 3. Contact info

Ojok Simon Peter

0772241709

simonojok19@gmail.com