Introduction

This document is a formal proposal for the development of software which implements the requested functonalities for the Lagos State Government Smart Meter Hackathon. Following chapters in this document define and analyse the problem to be solved as well as give a brief explanation of our software solution, its design principles and how it would function to solve the given problem.

Problem Statement

The Lagos State Ministry of Energy and Mineral Resources is out to find a simple and affordable yet modern approach to solving the household electric metering deficit in the state and Nigeria as a whole.

According to statistical studies from the ministry, sixty percent (60%) of households in the country are not metered. This has led to low revenue generation for electricity distribution companies, irregular supply of electricity across the nation, it is also an indicator of the rising number of cases of meter tampering and vandalization of electric infrastructure.

It is therefore apparent that the country need an innovative and budget friendly solution to this problem.

Proposed Solution (UMeter)

UMeter is a proposed web and mobile software solution to the aforemetioned metering problem under dvelopment by Team Uzucorp at the writing of this proposal. UMeter is designed with the principles of

1. **Simplicity**

UMeter is designed to give the users (Administration, Stakeholders and Subscribers) a blissful experience. This entails the use of modern User Experience principles that will make the final software so simple it would take less than a minute for any user to find his or her way around it.

1. **Robustness**

At the heart of UMeter’s architectural design is its microservice design pattern which gives it the ability to function even during temporary server downtimes.

1. **Extensiblity**

UMeter is designed to be updatable at anytime with low maintenance costs. It also has the ability to connect to any hardware meter that implements the IoT and comminication protocols it was built with.

UMeter is packed with functionality as stated in the Specifications Document handed to us as well as other functional requirements we had to add to make for a more seamless experience which include the following

Implemetation of smart contracts to facilitate payments using cryptocurrency in a simple and trustless way.

Administrative rights, roles and permissions

meter enrollment

billing trarrif flexiblity

antitampering response system (auto disconnection)

remote meter operations by the user

realtime notifications

ability to set power usage limits

ability to manage multiple meters as a user

meter installation requests by the user and approvals by the stakeholders.

Cost and schedule

summary