Theme: Development of a Web-Based Application for Gas Bottle Purchase, Supply, and Delivery

1. CONTEXT AND JUSTIFICATION

CONTEXT:

Over the years, Cameroon's cooking gas bottle market has seen significant transformation, with an increasing number of retailers involved in the B2C (business-to-consumer) model. This sector is essential for households relying on LPG (Liquefied Petroleum Gas) also known as Cooking gas. but it faces several challenges, including the manual search for suppliers and the risk of encountering fraudulent practices, such as discrepancies in gas prices and weights, which leave clients at a disadvantage. For this reason, we decided to develop a web-based application that will enable clients to order gas bottles remotely from a broad network of verified suppliers, minimizing the risk of fraud and ensuring that clients receive accurate pricing and proper gas bottle weights. Additionally, the web based application will facilitate timely delivery through a network of vetted delivery personnel, ensuring that clients receive their orders promptly and can focus on their daily activities without worrying about gas supply issues, making the process more efficient and reliable.

JUSTIFICATION:

The existing challenges in Cameroon’s cooking gas market highlight the need for a comprehensive solution to address issues such as manual supplier searches, the requirement for clients to be onsite for orders, and fraudulent practices, including discrepancies in gas prices and weights. Our proposed project, "Development of a Web-Based Application for Gas Bottle Purchase, Supply, and Delivery," aims to tackle these issues head-on. By creating a web-based application with the following features, we can:

* **Streamline Supplier Access**: Allow clients to remotely order gas bottles from a broad network of verified suppliers, eliminating the need for manual searches and reducing the risk of dealing with unreliable or fraudulent suppliers.
* **Enable Remote Ordering**: Address the current challenge where clients must be onsite to place an order by allowing them to make orders remotely, enhancing convenience and accessibility.
* **Ensure Accurate Pricing and Weights**: Minimize the risk of fraud by partnering with verified suppliers and implementing a robust verification process to ensure accurate pricing and proper gas bottle weights.
* **Facilitate Timely Delivery**: Utilize a network of vetted delivery personnel to ensure prompt delivery of orders, allowing clients to focus on their daily activities without worrying about gas supply issues.
* **Enhance Efficiency and Reliability**: Make the process more efficient and reliable, ensuring clients receive their orders promptly and improving their overall experience with gas bottle purchasing and delivery.

1. PROJECT OBJECTIVES

General Objective:

Develop a web-based application that verifies suppliers and delivery personnel, enabling clients to remotely place orders from nearby verified suppliers and receive timely delivery, ensuring reliability and convenience.

Specific Objectives

With this platform:

* **Clients should be able to**:
  + Submit their map address for easy search of nearby or close suppliers.
  + Remotely place and cancel orders at their convenience.
  + Remotely pay for an order.
* **Suppliers and Delivery Persons should be able to**:
  + Submit their application documents, such as driver's license, business license, etc., for verification.
  + Know whether they are validated or not.
  + Manage their orders and delivery requests, respectively.
* **Admin should be able to**:
  + Access submitted application documents.
  + Validate or reject submitted application documents.
  + Set gas bottle price constraints and specifications.

The project has the following characteristics:

✓ Name of Project: **Gas Space.**

✓ Project Target: Ensure Buying, Selling and Delivery of Domestic(cooking) Gas Bottles.

✓ Technical Specification: Web Application.

EXPRESSION OF NEEDS

Functional Needs

These are the requirements that the system must meet to fulfil its purpose, typically expressed in terms of the system’s inputs, outputs, and behaviours. They are as follows:

The administrator should be able to:

Manage Client Account

Add Client Account

View Account

Delete Account

Block Account

Manage Supplier Account

Add Client Account

View Account

Delete Account

Block Account

Manage Delivery Account

Add Client Account

View Account

Delete Account

Block Account

The Delivery Person should be able to:

Create Account

Authenticate

Submit National ID Card Application

Submit Vehicle Insurance Application

Submit Driver's License Application

Submit Visite Technique Application

Submit Vehicle registration Card Application

Manage Delivery

Accept Delivery Request

Execute Delivery Request

Decline Delivery Request

Manage Payments

Change Payment Account

View Payment History

Go Online

Go Offline

The Supplier should be able to:

Create Account

Submit Business License Application

Manage Gas Stock

Add Gas Bottle

Update Gas Bottle Info

Delete Gas Bottle

Manage Order

View Order

Accept Order

Decline Order

Manage Payments

Change Payment Account

View Payment History

The Client should be able to:

Place Order

Review Order

Cancel Order

Make Payment

Pay by Cash

Pay by E-Money

Receive Notification

Successful Order Notification

Successful Payment

**Non-Functional Needs**  
These specify the quality attributes of a software system. They evaluate the software system based on its performance, usability, scalability, portability, and other non-functional standards that are critical to its success. Failing to meet these non-functional needs can result in the system not fulfilling the users' needs.

**Performance and Scalability:**  
Performance refers to how quickly the web application responds to user actions under various workloads. It measures how long a user must wait for the system to process an action, such as placing an order, even when multiple users are using the application simultaneously. In addition, performance includes background operations that ensure smooth functioning without user awareness. Our goal is to deliver optimal performance, as it greatly impacts user satisfaction and overall experience.

Scalability, on the other hand, refers to the system’s ability to maintain its performance standards as the number of users increases. The platform should scale efficiently, ensuring clients, suppliers, and delivery personnel can all access it comfortably, even during peak demand.

**Accessibility:** The platform should be accessible across multiple platforms, including mobile phones, tablets, and desktop computers. As long as a user has a browser and an internet connection, the system should work seamlessly, ensuring flexibility in use.

The application should be intuitive, with a simple user interface that allows users to easily navigate and complete tasks.

The code should be clean and well-organized to allow for easy updates and future improvements.

The application should be accessible across all platforms with a browser and internet connection, ensuring flexibility for users on different devices.

PROJECT PLANNING