



# LPG Distribution Management Automation Using Load Cell and PHP

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## Abstract

LPG is the next generation of fuel. LPG consumer is increasing gradually in the country. LPG distribution is a large management system With an analog system. The biggest headache of LPG is refilling system. Consumer have faced plenty of problems regarding LPG refill. This paper purposes about a smart solution for Liquified Petroleum Gas distribution management with refill automation People don't need to worry about the LPG cylinder refill again.

## Introduction

LPG consumer is increasing gradually in the country. The main problem with LPG is, People do not know how much is left and when to refill LPG cylinder. There is also no smart distribution system for LPG.

With Basic e-commerce functionality and hardware we are going to make a **“Smart LPG Distribution Management and Automate the Refill System.”**

## Methodology

After studying a lot of research paper and talking with LPG providers we found out exactly what we need to built and what we need to use to make this user friendly.

We are making an analog system smart with the help of latest technology. We are using both hardware and software solution for this project.

### Software

#### ❑ Server :

- Localhost
- SMTP Mail Server

#### ❑ Backend :

- PHP
- SQL Server

#### ❑ Frontend :

- HTML
- CSS
- JS
- Bootstrap

#### ❑ Database

- MySQL

### Hardware

- LoadCell (5KG)
- HXT11 Amplifier Module
- ESP8266 Microcontroller
- Breadboard
- Connecting Wires

## Key Features

### ❖ Ecommerce Website

A full functioning ecommerce website with User & Admin panel .User can purchase and make payment .Admin can monitor all the purchases, monitor cylinder level and send user a notification about gas level.

### ❖ Cylinder Tracking:

Both admin and user can track the remaining level of gas in the cylinder.

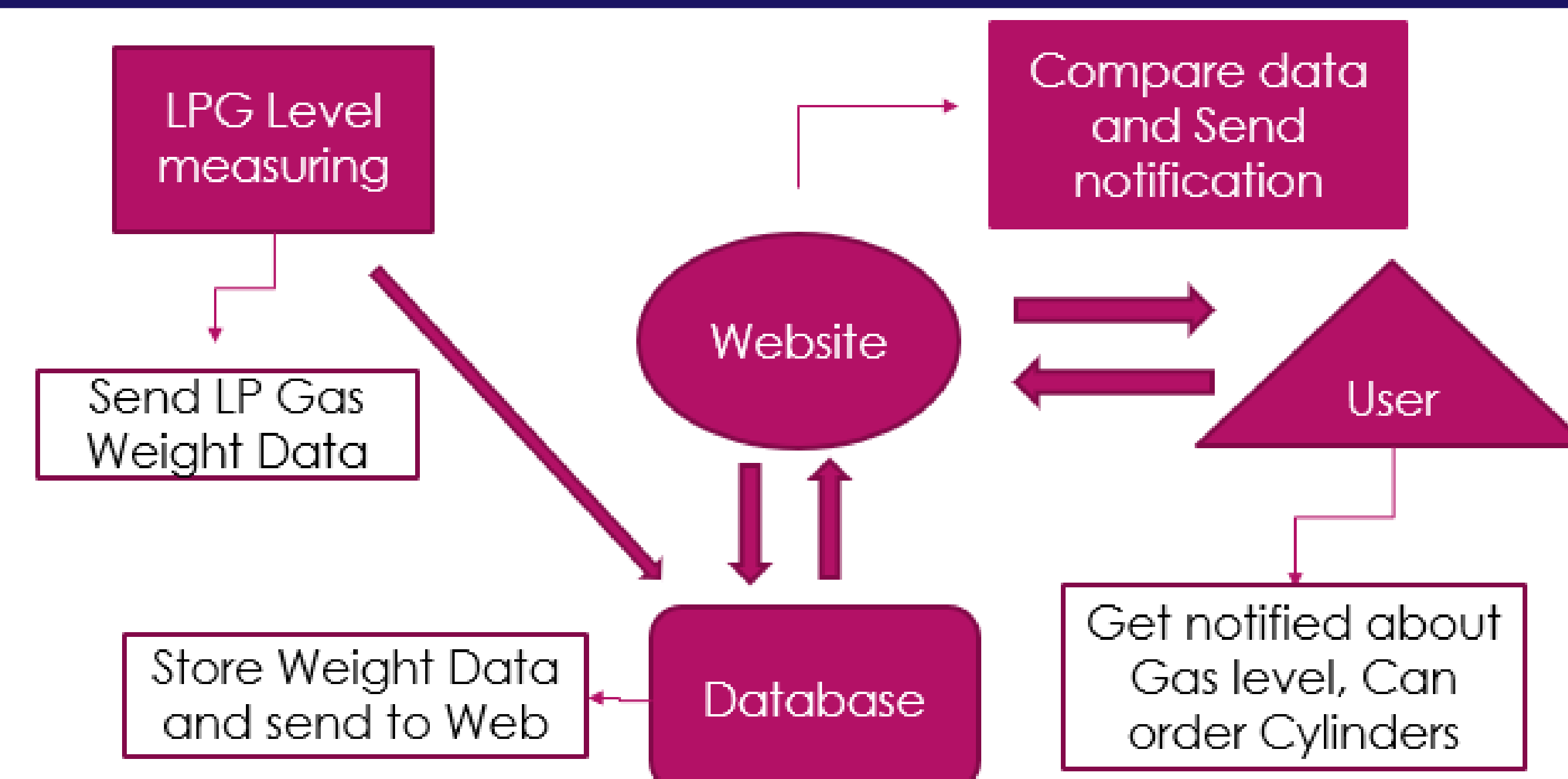
### ❖ Refill Automation

With a simple payment confirmation from user, The cylinder get refilled instantly

### ❖ Payment Gateway

A full functioning payment gateway is integrated using SSL COMMEREZ

## Workflow



## Software Interfaces

The screenshots show the following interfaces:

- User Login:** A form with fields for Email Address, Password, and a Login button. It also includes a link for "Forgot password?" and a "Signup now" link for new users.
- User Profile:** A table displaying user information: User ID (1), Name (Sany Mohammad Khaled), Phone (01953604877), Email (sanymohammadkhaled@gmail.com), Status (verified), Remaining Gas (258.9 Ltr.), and Location (Gazipur).
- Customer ID:** A form showing customer details: Customer ID (1), Name (Sany Mohammad Khaled), Phone (01953604877), Email (sanymohammadkhaled@gmail.com), Address (Gazipur), and Payable Total (4150 BDT).
- Store Admin Login:** A form with fields for Email and Password, and a LOGIN button.
- Store Admin Dashboard:** A welcome message: "Welcome Store Admin, System is up and running..."
- Product List:** A table showing product details: ID, Name, Phone, Email, Code, Status, Location, and Cylinder Status.
- Order History:** A table showing order details: Customer ID, Order ID, Name, Email, Phone, Amount, Address, Status, Trx ID, and Currency.

## Result And Discussion

- ✓ We have implemented load sensing device and connected that to a server using WIFI module. These data goes to database.
- ✓ We have developed a Ecommerce Website for user where he/she can register and purchase cylinder. User can also check the remaining gas level
- ✓ We have developed a admin panel. Store Admin can see all the user, payment, gas level and can send email automatically to user for refill and payment.
- ✓ We have successfully launched our application and tested all the possible scenario. All the features are working perfectly.

## Conclusion

- ✓ There is no other system for LPG distribution in our country.
- ✓ Our system turns a analog system into a smart system.
- ✓ Our system brings hassle free and automated refill system.
- ✓ Our system is pretty easy but effective, affordable, safe and reliable.

## Future Goals

- We want to focus more on user interface for better experience.
- Beside website, we want make android and iOS version of the system.
- We want to move the system from local server to hosted server.

## Acknowledgement

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