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| Capstone Project Document |

**Real Estate Website Management**

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| **<SWR302\_EstateLux>** | |
| **Group Members** | Ha Pham Cuong  Ha Van Quang  Nguyen Thanh Long  Hoang Duc Truong  Nguyen Trong Duy An |
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MINISTRY OF EDUCATION AND TRAINING

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**Acknowledgement**

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Last but not least, we would like to thank FPT University for giving us this precious opportunity to constantly study and improve ourselves. What we learned through this project will be the basis for us to work well after graduation.

**Definition and Acronyms**

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| **Acronym** | **Definition** |
| BA | Business Analysis |
| BR | Business Rule |
| ERD | Entity Relationship Diagram |
| GUI | Graphical User Interface |
| PM | Project Manager |
| SDD | Software Design Description |
| SPM P | Software Project Management Plan |
| SRS | Software Requirement Specification |
| UAT | User Acceptance Test |
| UC | Use Case |
| API | Application Program Interface |
| IOT | Internet of things |

1. **Project Introduction**
   1. **Overview**
   2. Project Information

* Project name: **Real Estate Website Management**
* Project code: **Gas-Meter**
* Project group name: **SWR302\_EstateLux**
* Product type: Software Project Management Plan, Website and Mobile Application.
  1. Project Team

1. Supervisor

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1. Team Members

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## Product Background

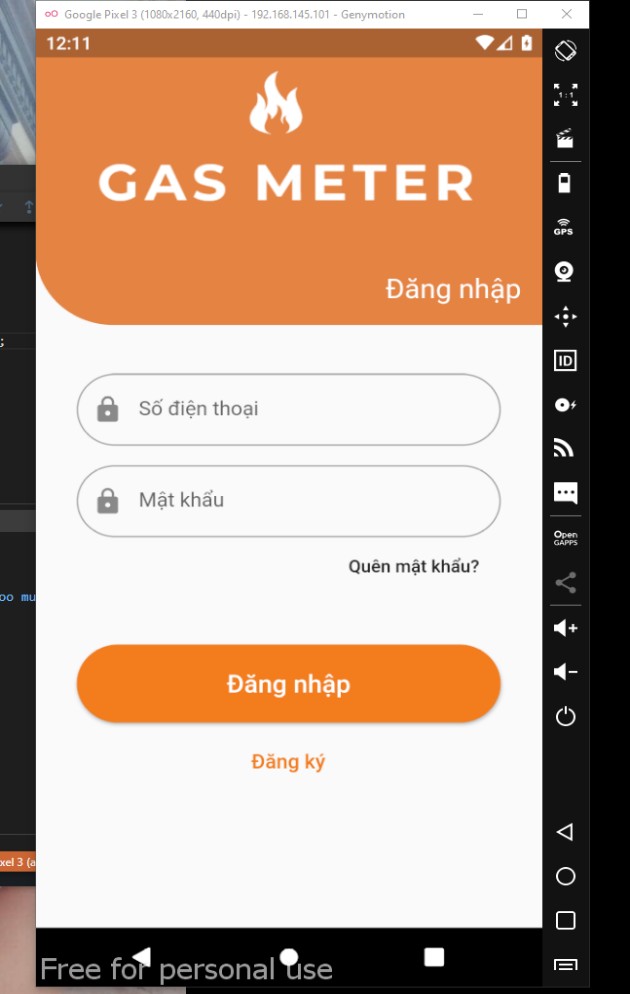
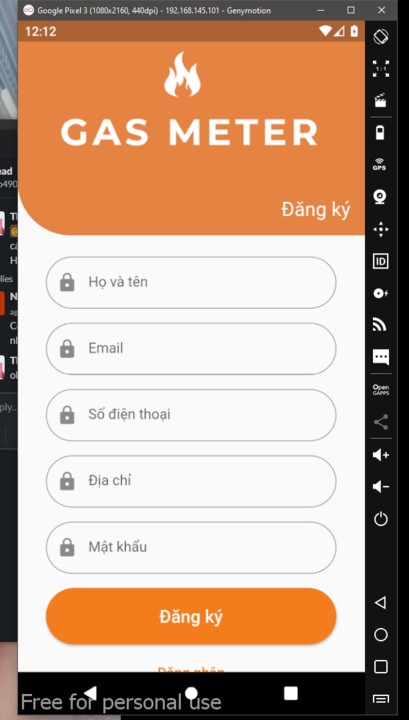
Today, many families are still using gas for cooking and warming during winter. Since they would buy gas at the gas stores, it is essential to have a software that support managing gas exchanges between the store and the customers. Also, there are risks that related to safety while using gas – leaked gas can easily start a fire or explosion. Therefore, we aim to develop a system that manages anything related to manage gas situation between stores and customers.

## Existing Systems

* 1. Mobile application

This software can be downloaded on Google Play.In the future, we can develop on App Store. The mobile app is used by the customers of the gas store. If an user is a new user, he/she can register an account through the app and login. From the app:

* + - User can check the following parameters: gas concentration, temperature, remaining gas, ...
    - Users also receive risk notifications and warnings when there is a fire hazard
    - Update location user through the app.

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| ***Advantages*** | ***Disadvantages*** |
| GUI is user-friendly, suppost language: VietNamese. | Available only on Android |
| Freeware, public on Google Play | Need internet to take notification |
| Handy, simple, easy to use anytime, anywhere |  |

* 1. Web application

This software is published publicly on the Internet and it is freeware. It covers bussiness aspects that a gas store would face in a real life situation, such as creating, reading, updating and deleting gas cylinder informations, etc... This software supports only remote access and all data stored on a server. The server uses Database-as-a-Service (DaaS), which brings many benefits such as Security, High Availability, less configuration. That’s a good option and example for us to consider using DaaS.

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| ***Advantages*** | ***Disadvantages*** |
| GUI is user-friendly, support language: Vietnamese | Only support remote access (Web), no support for offline use (Desktop apps) |
| There is always an employee flow the website 24/7 | Only support via hotline, not via facebook, zalo, etc… |
| As long as the internet is available, it can be accessed at all times. | Low security, easy to attack by hackers |



* 1. Backend system

Backend system is made base on Spring Boot. Spring Boot is a project developed by JAV (java language) in Spring framework ecosystem. It helps our programmers to simplify the process of programming an application with Spring, focusing only on developing business for the application.

* 1. Embedded system

Backend system is made base on Arduino. Arduino is an open-source electronics platform based on easy-to-use hardware and software. It’s simple and accessible user experience, bring many benefits such as high Availability, less configuration. That’s a good option and example for us to consider using Adruino.

## Business Opportunity

Today every apartment in Vietnam has at least one gas stove. So this is a good opportunity for the gas trading industry in Vietnam to develop.

However, the safety issue when using the gas stove is a very important issue for users. As for businesses, they need to manage the amount of gas consumed as well as their customers.

To solve this problem, an IoT system will help users keep track of indicators such as temperature in the room, amount of gas, ... There is also a web service that helps stores to manage customer management as well as the amount of gas sold.

## Software Product Vision

With the Applying IOT for managing household gas cylinder system (Gas-Meter), we aim to optimize the operational structure of managing gas cylinder for each customer, both versions of the software brings the best result and experience to our customer. Specifically, in the Web Application version, the software assists management functions of gas cylinder which are currently using by customers for admin from head to toe while the Mobile Application version provides to the customers the ability of knowing the situation of his/her current gas so that he/she could contact the store when there is any problem. The system supports both the stores and the customers of the stores in terms of managing problem with gas cylinder.

## Project Scope & Limitations

Gas-Meter is not system give me information about gas cylinder, temperature environment, warning when there is fire or explosion on the phone has a web-based management system that helps the gas- store operate easily and flexibly.

6.1 Major Features

* Mobile application:
  + Role: User
    - Allows users to view and change personal information
    - Allows users to monitor device information such as: gas concentration, remaining gas, ambient temperature, and device battery
    - Send notification for user.
* Web application:
  + Role: Store
    - Allows Store to manage list user information that belongs to your store
    - Allows Store to manage list contract information that belongs to your store
    - Allows Store to manage list broken device information that belongs to your store
    - Allows Store to view map show location of devices and it’s status
  + Role: Admin
    - Allows Admin to manage list store.
    - Allows Admin to manage list user information in each store
    - Allows Admin to manage list contract information in each store
    - Allows Admin to manage list all broken device information
    - Allows Admin to view map show location of devices and it’s status