Group 4 - Capstone Project 2019

In-Store Customer Heatmap System

# **Introduction**

## **1. Project Information**

- Project name: In-Store Customer Heatmap System

- Project Code: ICHS

- Project Type: Web Application

- Start Date:

- End Date:

## **2. Introduction**

In this project, we will introduce a solution in store management and store data analysis. In the current era of information technology, information or data is always very important and useful in many fields, especially in management.

The application we are about to use will also use technologies to make it easier for users to manage or analyze, in which the camera supports RTSP protocol will combine with the application that supports converting video to the heatmap form shown on 2D model.

Through this application, along with the features it offers, the team wants to help managers or shop owners have a different view of store management and will have necessary changes to make the store better.

## **3. Current Situation**

Currently, the use of shop's security cameras is simply used for monitoring purposes and when problems arise, the videos will be extracted. This inadvertently wastes the amazing effects that the camera offers.

What the current camera offers is just boring images and it is quite difficult to exploit all that data effectively.

Nowadays, when information technology is very developed, AI (Artificial Intelligence) is also one of the things that are very interested. So, combining cameras with an AI-based application that helps users to make the most of the benefits of the camera is really a good idea.

## **4. Problem Definition**

* Applications included with the camera are usually only used for streaming and video playback.
* Streaming is mainly used for monitoring purposes.
* The extracted videos do not bring much value for analysis.
* Do not bring the most of the benefits that the camera offers.

## **5. Proposed Solution**

Our Proposed Solution is to build a system named In-Store Customer Heatmap System (ICHS), a Web-based application where users can stream videos and view it in the heatmap form, can then know the density of areas, count the number of people ... from there, based on videos stored on the cloud, can be analyze and make assessments or reasonable changes.

### **5.1. Feature functions**

- Video streaming

- Detect people on video

- People counting on video

- Measure store traffic in real time and show on heatmap (update every 30s)

- Get report

- Storing video from store to cloud server

- Manage account, company, camera... in Web Admin

### **5.2. Advantages and disadvantages**

* **Advantages**

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* **Disadvantages**

## **6. Functional Requirement**

## **7. Role and Responsibilities**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| No | Full Name | Role | Position | Contact |
| 1 | Mr. Lâm Hữu Khánh Phương | Project Manager | Supervisor | phuonglhk@fpt.edu.vn |
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# **Software Project Management Plan**

## **Problem Definition**

* 1. Name of This Capstone Project

**- Official name**: In-Store Customer Heatmap System

**- Vietnamese name**: Xây dựng biểu đồ nhiệt khách hàng trong cửa hàng

**- Abbreviation**: ICHS

* 1. Problem Abstract

Currently, the use of cameras in shops, restaurants, ... is extremely common and necessary. Cameras here are often used for observation, management or monitoring. But when technology is growing, we can fully utilize cameras to do more things. With that in mind, the develop team decided to develop a software to do it in the most optimal way.

Based on RTSP protocol, combined with camera and a stable internet connection. An web based application has been made, thanks to the combination of machine learning and algorithms, we can now count the number of people in the store through the video screen,measure store traffic in real time and show on heatmap, the owner/manager also can get some reports from the application ... thereby helping store management more proactive.

* 1. Project Overview

## **Project Organization**

* 1. Software Process Model
  2. Roles and Responsibilities
  3. Tools and Techniques

## **Project Management Plan**

* 1. Software Development Life Cycle
  2. Phase Detail
  3. All Meeting Minutes

## **Coding Convention**

# **Software Requirement Specification**

## **User Requirement Specification**

## **System Requirement Specification**

* 1. External Interface Requirement
  2. System Overview Use Case
  3. List of Use Case

## **Software System Attribute**

* 1. Usability
  2. Reliability
  3. Availability
  4. Security
  5. Maintainability
  6. Portability
  7. Performance

## **Conceptual Diagram**

# **Software Design Description**

## **Design Overview**

## **System Architecture Design**

## **Component Diagram**

## **Detailed Description**

## **User Interface Design**

## **Database Design**

## **Algorithms**

# **System Implementation & Test**

## **Introduction**

* 1. Overview
  2. Test Approach

## **Database Relationship Diagram**

* 1. Physical Diagram
  2. Data Dictionary

## **Test Plan**

* 1. Features to be Tested
  2. Features not to be Tested

## **Testing Test Case**

* 1. Test Case
  2. ....

# **Software User’s Manual**

## **Installation Guide**

* 1. Hardware Requirement
  2. Software Requirement

## **User Guide**

# **F1.ソフトウェアユーザーマニュアル**

# **Appendix**