

Prototype of Security System for Computing Department

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ABSTRACT

The project purpose is the enhancing the security in computing department Universiti Selangor (Unisel) Bestari Jaya by installing security system of Internet provider (IP) camera. The system can make the computing department on safe hand. This system will be control by the security officer. If the camera detect any movement and it will recorded the area using the camera during odd hour or midnight and store the file into the file repository. The system can only be access by the head of the security officer to get the file if there is any issues arise because of the admin is the head of security officer. This system also will ease the security officer on their daily working hour. The method that has been use to develop this project is Rational Unified Process (RUP). It is the best methodology for developing a system. From analysing the system within the project scope and identify all the entities to design and program the system until finalise and make a beta testing before the system done perfectly. In addition, data collection method had been done by interviewing the head of security officer and the questionnaire to the staff and student in the computing department. As the result of the data collection, many respondent want the system security been install in the computing department and the process of report continue to develop to the next chapter. Finally, the developer design from system design to create an activity design, use case design and sequence design. The database design to figure out each entities that been use in the system. The last design is interface design for completing the system. It must be user friendly for the security officer easy handle the system for their daily working routine.

Keywords

Security system, IP camera, web based, notification.

1. INTRODUCTION

All security systems work on the same basic principle of securing entry points of doors and windows, as well as interior space containing valuables like art, computers, jewellerys, and collections (Safety Wise. 2017). Even though, this system is not enough to cover the entire building, at least it will protect the building from unexpected movement.

This project is about enhancing security measurement around Computing Department Unisel Bestari Jaya by installing IP camera and control remote using mobile application. The developer objective is to centralize monitoring system that must be able to alert the security officer in their mobile application if there is any movement during odd hours and late night around the department.

The important of the project is to facilitate the security officer and aware if any issues detect from the Computing Department, the detection that came from the IP camera that respond to movement, sound, or heat. There is no wasted

recording if no movement, but as soon as there is action, the camera goes live. (Tibi Puii. 2014).

2. OVERVIEW

2.1 Problem Statement

Computing Department have many equipment from computers, CPU, laptop & servers that are so expensive. Monitoring in the department is manually done by the Security Officer. There will be high potential of break into any laboratory. Normal scenario is the thief comes around when there is nobody around especially after midnight and break into classes or laboratory and basically the security officer or staff will notice it on the next day and report to police officer.

The Security post is at the main entrance of the campus and it will take time to go to the computing department. If any emergency case or intruders during odd hour, they will not be aware on time and will lose the suspect. Without any IP camera, the action will not be recorded to security file system and no evidence. The case also will not completed, clueless, waste of time and energy. It also ease the intruders to know when the Security Officer shift on monitoring the area.

There is no system that warning the officer if any issues happen. They only can update about the issues the day after if any case happen. If it does, it also have less information about the cases. To make sure that the security officer always aware in the department, the developer should install an IP camera in the department and any situation that may appear they will be notified.

2.2 Objectives

This study focuses on the following objectives:

1. To develop a system capable of monitoring the area
2. To prepare a file repository.
3. To create awareness among the security officer.

2.3 Scope and Limitations

Admin will control all the security system and can only be sign in by the admin. The admin will be the head of the security officer. The security officer can only use the mobile application to view the IP camera and getting aware or notification if any issues happen in actual live situation. The system will fully be use by the Security Officer to make sure the department area is secure with the help of the IP camera using Power over Ethernet (POE). The movement detection using infrared camera.

This security system will help the Security Officer with the investigation of the crime or theft in the department property. The security officer will become more efficient in addressing the problems that will be faced. The computing department

will be protected by IP cameras installed to monitor every case that will occur. The records will be stored in the file repository in the system created by the developer. This is the main of security system monitoring services, and with integrated alert and they can rest assured that any suspicious activities and aware or be notify by email will be reported to the Security Officer and solve problems quickly.

Software and hardware would be the constraint of this project because the developer has to limited access to the IP camera. The developer also needs to learn new programming language about mobile application. Critical assumption can be the product is hard to find the cheap one and friendly user. It will cost more money if the product did not support any software that the developer used.

3. LITERATURE REVIEW

In order to complete this project, literature review was carried out to gain knowledge and skills needed. The main sources for this project are books, journals and articles obtained from internet and the previous project and thesis is related to this project. This chapter discuss the projects and this related to this project. This chapter also discuss a related research conducted by previous project in the other country.

From analysis, the project did by other researchers also have certain weakness. It is very important to improve and to develop a good project. This project also will recommend some future works that could be done to improve the same project. There are some useful ideas that can be implemented in this project from other similar projects.

Table 1: Comparisons of three case studies and project

Features	ADT	Sharp	Xiaomi	RR Security
Free Setup		/	/	/
IP Camera	/			/
Recorded	/	/		/
Notify		/		/

Based on all the case study that had been reviewed by the developer, sharp ip camera will be the best to be the guideline for the project. Sharp have some similarity with the project and the developer will make it more useful than the other devices. Security system can be overall and can be minimum secure. It is up to the organization to apply what customers need for their security environment. There is some company provide mobile application and others just website or PC software to view the camera. The goods is if the camera provide storage to record if any alert issues pop-up. The Developer will make sure that the security system will contain overall of the features and addition of notification through web based or email.

4. RATIONAL UNIFIED PROCESS (RUP)

This method divides the development process into four distinct phases that each involve business modelling, analysis and design, implementation, testing and deployment.

4.1 Inception

To make analysis the system within the project scope and identify all the external entities. To determine what resources

will be needed and to identify all the significant study to overcome this project. The developer needs to collect all possible data from the security office to make sure that this project will achieve the objective.

4.2 Elaboration

In the elaboration phase, the developer needs to plan and design architecture prototype depending on the scope, size, risk, and novelty of the project. This process should at least address the critical use cases identified in the inception phase, which typically expose the major technical risks of the project.

4.3 Construction

At this point, the developer decides if the software, the sites, and the users are ready to go operational, without exposing the project to high risks and knowing the capabilities of the system. The development of the system will be done in this phase, and it will be tested to the security officer. Transition may have to be postponed by one release if the project fails to reach this milestone.

4.4 Transition

This final phase, the system will go for public and will be used for real life situation. Typically, this phase includes several iterations, including beta releases, general availability releases, as well as bug-fix and enhancement releases. Developer will hand over the system to the head of security officer.

5. DESIGN

This section will show all design by the developer. The overview of the design will be included in this chapter by the developer to show each process that have been made before and after the progress of developing this security system. It will show the detail process of activity for both admin and security officer. Figure 1 shows the overall design by the developer.

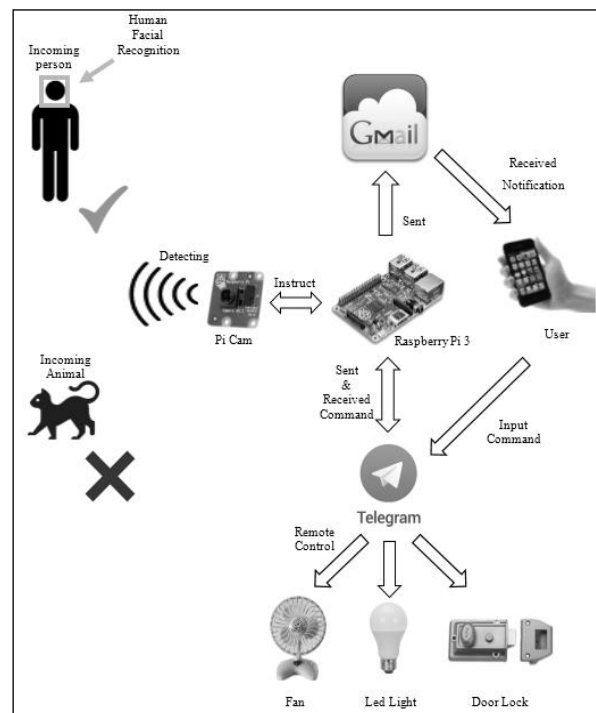


Figure 1: Project Design

The project design represents the elements involved in the proposed system. Based on Figure 1 it shows the flow of the architecture. When a person near to the Pi Camera, the Raspberry Pi 3 will instruct the Pi Camera to detect the incoming object by using human facial recognition. If there is a human facial detected, the Pi Camera will take the photo of the incoming person and sent the captured photo to Raspberry Pi. The Raspberry Pi will then upload and sent the photo to an email, then the user will receive a notification through the user's mobile phone. With the Telegram, the user can remote control the electronic products to attend the visitor when the user is not on the premise.

6. CONCLUSION

Security system using IP camera the best way to solve any issues occurred during odd hour at computing department Universiti Selangor Bestari Jaya. Developer program the web based interface user friendly for the security officer easy their work. This project will improve the security in the computing department. The author hope that there will no issues or cases will be no cases of theft and burglary anymore.

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