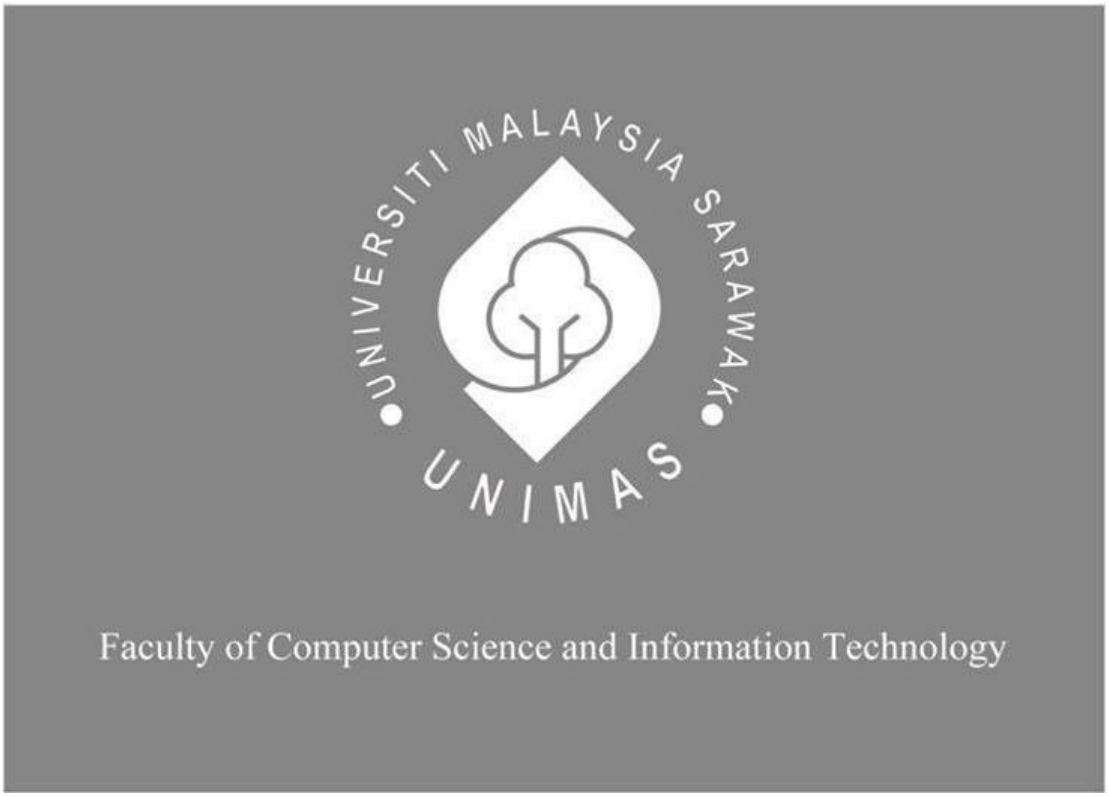

WEB-BASED LOST ITEM COMPLAINT SYSTEM WITH CHATBOT FOR DAHLIA RESIDENTIAL COLLEGE

Muhammad Ashraff bin Aman

Bachelor of Computer Science with Honours

(Network Computing)

2023

WEB-BASED LOST ITEM COMPLAINT SYSTEM WITH CHATBOT FOR DAHLIA RESIDENTIAL COLLEGE

MUHAMMAD ASHRAFF BIN AMAN

This project is submitted in partial fulfillment of the requirements for the degree of Bachelor of Computer Science with Honours
(Network Computing)

Faculty of Computer Science and Information Technology
UNIVERSITI MALAYSIA SARAWAK
2023

SISTEM ADUAN BARANG HILANG BERASASKAN WEB DENGAN CHATBOT UNTUK KOLEJ KEDIAMAN DAHLIA

MUHAMMAD ASHRAFF BIN AMAN

Projek ini merupakan satu keperluan untuk

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Lastly, I would like to express my gratitude to my parents, siblings, and everyone that involved to encourage and prayed for my project successes.

ABSTRACT

The purpose of the project is to develop a web system called Web-Based Lost Item Complaint System with Chatbot that helps Dahlia Residential College to manage their complaints on lost item and give a more centralized platform to do complaints. Furthermore, the literature review on existing application is carried out to study the features, depiction and functionality implemented in the applications. An interview will be conducted to gather more information regarding the clients desired outcome of the project. Afterwards, the requirements are analyzed depicted into flowcharts, data flow diagram and entity relationship diagram. Moreover, Agile methodology is selected to ensure that the project is meticulously finish and evaluated by users. Furthermore, the implementation showcases the application use to design the system prototype along with the features and functionality. Implementations done are based on the data flow diagram and wireframes. The testing phase is where the functional testing that uses test cases and non-functional testing where the system is analysed through different factors such as performance, security and usability. Overall, the web-based prototype has its own achievements with a few limitations and constraints. The system is further discussed of its potential future deployment. The system aspires to bring benefits to Dahlia Residential College in providing a convenient system that can be accessed online to place their lost item complaints so that it can be address to the management swiftly.

ABSTRAK

Tujuan projek ini adalah untuk membangunkan sistem web yang dipanggil Sistem Aduan Barang Hilang Berasaskan Web dengan Chatbot yang membantu Kolej Kediaman Dahlia menguruskan aduan mereka mengenai kehilangan barang serta memberi satu sistem khusus untuk membuat aduan. Selain itu, kajian kesusasteraan terhadap aplikasi sedia ada dijalankan untuk mengkaji ciri, gambaran dan fungsi yang dilaksanakan dalam aplikasi. Temu bual akan dibuat untuk mengumpul lebih banyak maklumat mengenai hasil projek yang dikehendaki pelanggan. Selepas itu, keperluan analisis yang digambarkan dalam carta alir, rajah hubungan entiti dan rajah aliran data. Tambahan pula, metodologi Agile dipilih untuk memastikan projek disiapkan dengan teliti dan dinilai oleh pengguna. Seterusnya, pembinaan sistem dapat dibuat melalui penggunaan aplikasi untuk merancang prototaip sistem bersama dengan ciri-ciri dan fungsi. Prototaip juga akan berdasarkan gambaran aliran data (data flow diagram) dan kerangka wayar (wireframes). Fasa pengujian merupakan fasa di mana pengujian berfungsi yang menggunakan kes-kes ujian dan pengujian bukan berfungsi di mana sistem dianalisis melalui faktor-faktor yang berbeza seperti prestasi, keselamatan, dan kebolehgunaan. Prototaip berasaskan web ini mempunyai pencapaian tersendiri dengan beberapa kekangan dan batasan. Sistem ini juga terus dibincangkan mengenai potensi sistem ini untuk jangka masa panjang. Sistem ini mampu memberikan manfaat kepada Kolej Dahlia dengan menyediakan sistem yang mudah digunakan dan boleh diakses dalam talian untuk mengemukakan aduan barang hilang supaya dapat segera ditangani oleh pihak pengurusan.

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CHAPTER 1: INTRODUCTION

1.1 Introduction

Web-based applications used to lack in functionality. Even so, with the advance of technology, internet and reliability have improved the potential purpose of web-based systems. Nowadays, everything that used to be physically written with paper now can be made on the web with just a click of a link. Universities and school are some places that often use web-based system to manage registrations, students' personal information and study progress.

For students who want to stay in campus, they get to register with their chosen residential colleges by going through respective web-based systems. This minimizes the registration process in the management office without students going through long queues just to fill in forms. Furthermore, it can be done anywhere, and the information can be reached to the residential management office instantly.

For this system, it handles complaints on lost items by Dahlia residents. The system also equipped with a chatbot that can respond to any crucial inquiries at any time. Currently, Dahlia Residential College has its own ways in dealing the matter. According to the Dahlia office staff, students can file a lost item complaint at the Dahlia Office by filling up two forms which is the Customer Complaint Form and the Accident/Incident Report Form. The forms will be hand in to the Dahlia management for further investigation. The forms must be filled up on the spot and are not allowed to be brought outside the office.

The aim is to introduce a new procedure not just for the office staff but for college residents to fully utilize a platform that is reliable and user-friendly.

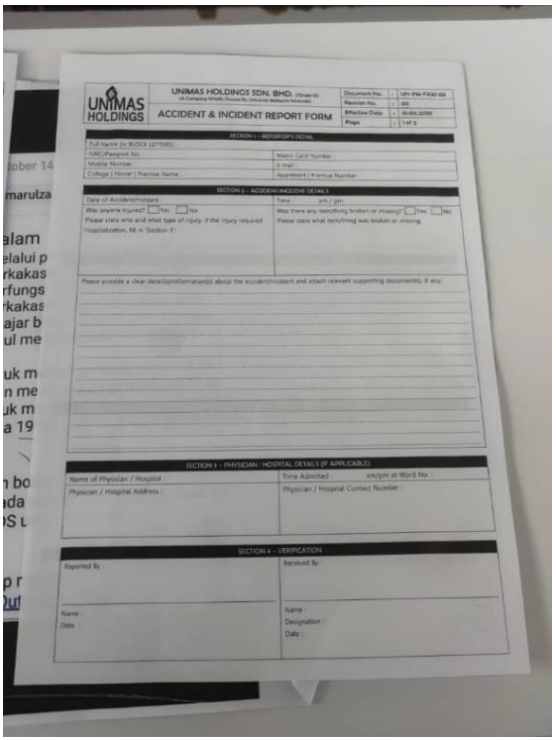

Figure 1.1 Accident & Innocent Report Form

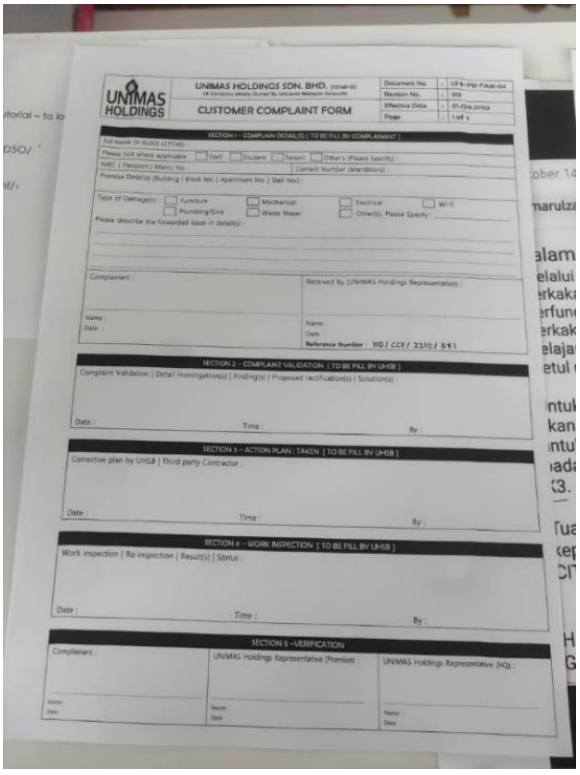

Figure 1.2 Customer Complaint Form

1.2 Problem Statement

There are some problems that students encounter when filing a lost item complaint such as:

- The Dahlia office follows its own operational hours which makes students unable to report at crucial times.
- The forms collected in the office may not be organized and further paperwork needs to be done.
- Information collected from the form can sometimes be unclear due to human errors, hence further clarification needs to be address.

The Dahlia office currently accepts complaints through physical means therefore students are unable to report their missing belongings during non-office hours. The forms need to go through a lot of process before any actions could be permissible. In an office where paperwork is unavoidable, it may lead to forms to be unintended or mixed up with other papers. A clear lost item complaint system should resolve the matter. In addition to that, unreadable writing, and the inability to give more specific details about the missing item could disrupt the investigation due to lack of information.

1.3 Objectives

The objectives of this project are as follows:

- To design and develop a web-based system that enable students to file a complaint in a more systematic way at all times.
- To integrate a chatbot system to answer Frequently Asked Questions (FAQ's) by students.
- To generate a lost item report which can be documented by the Dahlia College Management Office.

1.4 Methodology

There are common development methodology approaches such as waterfall, prototyping, iterative and incremental development, spiral development, rapid application development, extreme programming, and agile methodology. This project will adopt the agile methodology as it is more suitable for this project which uses both iterative and incremental development at the same time. It involves with collaboration with stakeholders with different stages that requires improvement along the way. Once the project commences, the cycle will go through a process of planning, executing and evaluating. Currently, one of the facilities officers from UNIMAS Holdings Sdn Bhd, Justin Baba has been contacted so that the project will get continuous ideas through meetings and discussions to ensure suitable system for Dahlia College.

The implementation of agile methodology will guarantee better product quality through feedbacks by stakeholders. Moreover, the flexibility in which stakeholders provide their own stage inputs and adaptivity will endorse more changes in between project schedules. Working system can be presented to project's stakeholders at certain stages which leads to improved project visibility that ensures stakeholder quality and progress.

1.5 Scope

The scope of this project consists of two groups which is Admin (Dahlia College Management Administrator) and User (Dahlia Residents) where the admin receives lost item complaints from the system and have multiple actions whether to generate the complaint into pdf, update status, inspect form, etc. The users have the option to add and fill the forms with necessary information and can see the status whether the form is received and viewed by the admin. The users can also edit if there are any changes needed to be made or item has been found so that the admin will be alerted with the situation. Chatbots can be interacted by users for further inquiries from students.

1.6 Significance of project

The proposed web-based system is a beneficial platform for both parties as it can be access anywhere and can be monitored at any given moment. The idea to improve the current procedure of filing a lost item complaint into a more digitalized method is a great shift in taking advantage of the current internet technologies that bring reliability and convenience to all.

Moreover, less usage of paper is encouraged in this current time where all documents can be saved in the database instead of files that can take up space in an office room. Not only does it can conserve energy, but it can also save office money too.

1.7 Project schedule

The progress for all the 3 chapters in final year project (FYP) will be compiled to form FYP1 and will be submitted on the 25th January 2023 in the first semester of 2022/2023. The following semester will showcase the continuation of the first FYP and it will be more focused on the development side.

1.8 Project Outcome

At the end of this project, this project is expected to provide a lost item complaint web-based system which includes a chatbot for Dahlia College where it is managed by the Dahlia office management. This includes full access to the admin role and functionality and database. While unfortunate Dahlia students who have lost their items can have the convenience to use the system wherever they want and submit the full complaint to the office management for further actions.

1.9 Chapter Summary

The highlights for the Chapter 1 Introduction consists of problems that has been pointed out, objectives that needs to be fulfilled, methods used, project scope, how significant is the proposed project, a project schedule for reference, and the desired outcome.

CHAPTER 2: LITERATURE REVIEW

2.1 Introduction

The use of web-based systems has been the norm for companies and organizations in handling problems faced by their clients. They are responsible for anything that happens as the clients have the rights to voice their concern when they face complications while using their services with respect to their organization policies. One of the alternatives besides reporting directly to the organizations via office department is through an established web-based system.

Dahlia Residential College, a private residential property which is under UNIMAS Holdings Sdn. Bhd. (UHSB) has always been a reputed company that has participated in both federal and state government projects and has been registered with few government agencies such as Ministry of Finance, Human Resource Development Fund, National Resources and Environment Board, and so on. They made sure that Dahlia College provides the best accommodation for their residents. However, to ensure lost items were alerted to the authorities, the only way residents could file a lost item complaint is through filing up a form at the Dahlia office which is currently the only procedure that can be done.

This chapter highlights the existing lost item complaint system that will be analyzed and compared to the proposed system. There are parameters that will be taken note and three existing systems was chosen for comparison. The uniqueness of each existing systems will be observed for reference purposes when the proposed system is at the build phase.

2.2 Overview on Similar Systems

2.2.1 RMP e-Reporting System

RMP e-Reporting System is a service provided by RMP which gives the public the ease to make a police report online, which do not involve criminal cases and/or which do not require further investigation by the police. e-Reporting is restricted to Malaysians aged 18 years and above and can be accessed anytime and anywhere via Internet.

The e-Reporting System was officiated by YDH Tan Sri Dato' Sri Khalid Bin Abu Bakar, Inspector General of Police. The e-Reporting facility is currently limited only to serve in the Kuala Lumpur Contingent area. From this, a total of 1,858 police reports have been lodged through this web-based system with 13,578 registered users across Kuala Lumpur. Missing items including identity card, passport, credit/ATM card, handphone and road tax can be done here.

RMP currently envisions a total Digital Government that combines business and technology that enhance user experience with centralized services. They will continue to improve productivity and extend services when needed through this digital channel.

The system starts with user to register and log into their new account. Users are able to enter their details about their missing item through the given forms, confirmation to make sure all the details are correct, and print the report when necessary. Overall, the features of the system are straightforward and easy to understand with simplistic and clean UI.

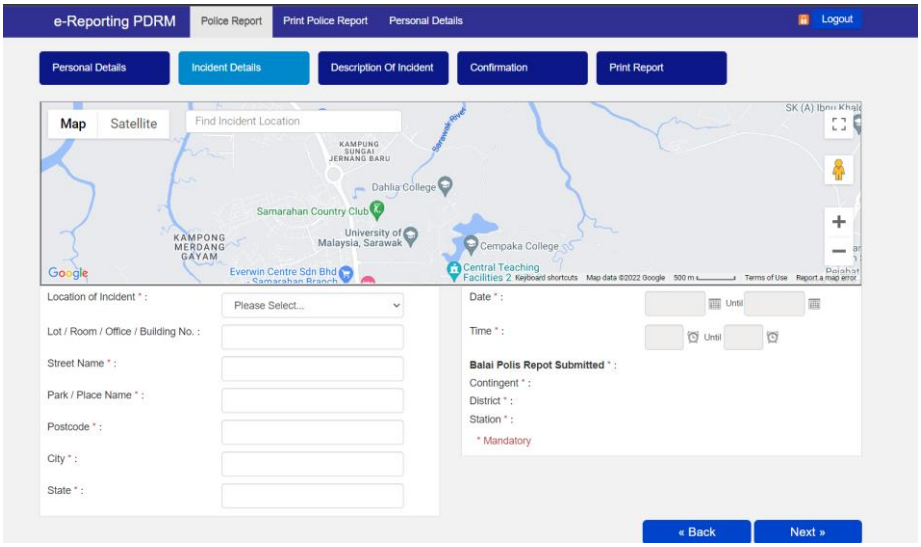

Figure 2.1 RMP e-Reporting System

2.2.2 UTAR Lost and Found Management System

Universiti Tunku Abdul Rahman (UTAR) Lost and Found Management System was made by Chin Yun Ting, a software engineer student for her final year project (FYP). The goal was to analyze any existing lost and found problems that exist within UTAR and observe features of similar systems that will be used for the project. A more efficient and effective way of managing and organizing the missing items can be achieved by utilizing the system.

The system can be accessed through registering and logging in to the system. The features are the announcement page connected to either directly from the system or through social media. There are also forms to report any missing item cases so that the management are aware of the situation. In addition to that, the inclusion of the item found section is where the users could claim their missing items if they have been found. The variety of features included in the system gives the user ease when filling out the report form. (Chin, Y. T. 2020).

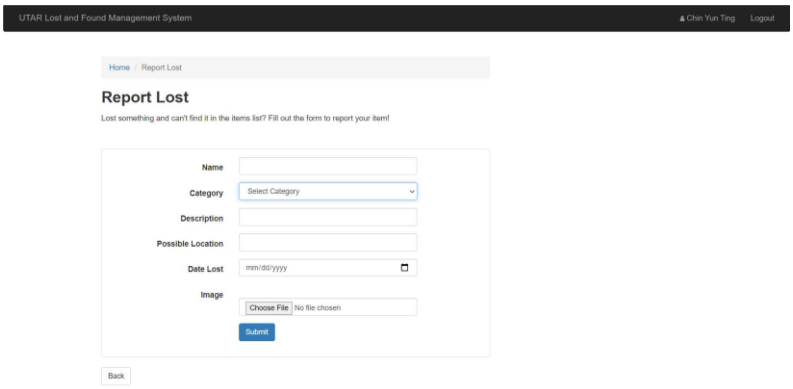

Figure 2.2 Lost Report Form

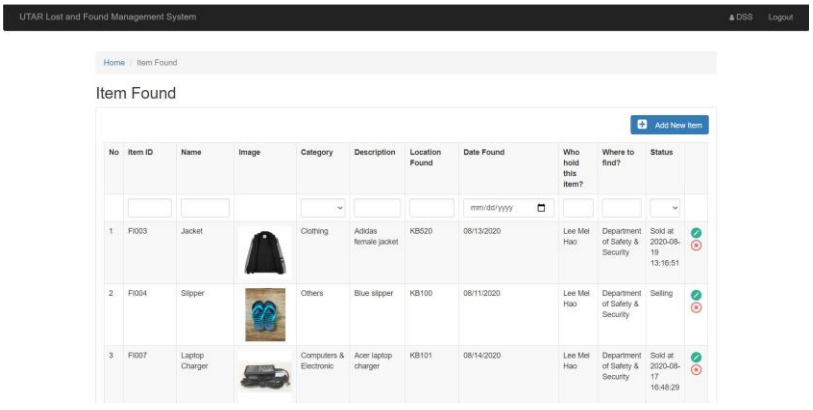

Figure 2.3 Item Found Section

2.2.3 RepoApp

RepoApp is a web-based lost and found software with a mobile-friendly design of user interface. It allows customers to integrate with the website so any operations can be done within their organization website. Most American universities and the renowned National University of Singapore (NUS) are currently now using RepoApp to manage lost and found items within the entire campus.

The features of RepoApp include an email notification to suspected owners. This allows admin to send emails with the templates provided without ever needing to write their own email content. This feature proofs to save time and will be able to contact the victims in an instant. The release of unclaimed items will also be implemented in the lost and found system. All the expired items will be opened for students to bid on to avoid wastage.

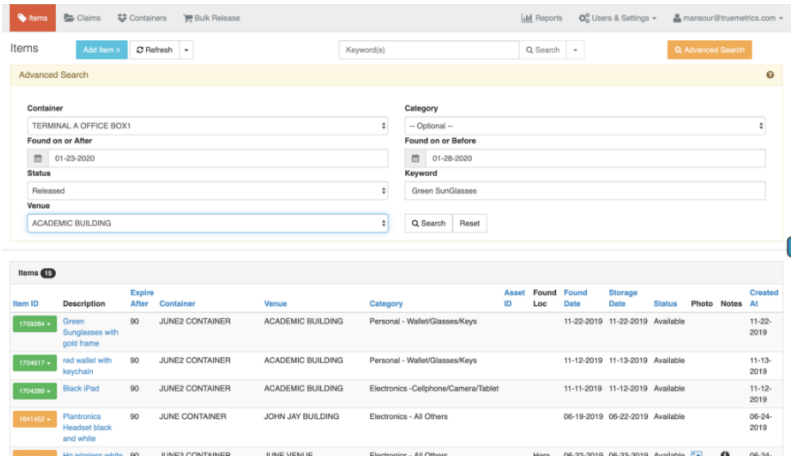

Figure 2.4 Search Feature

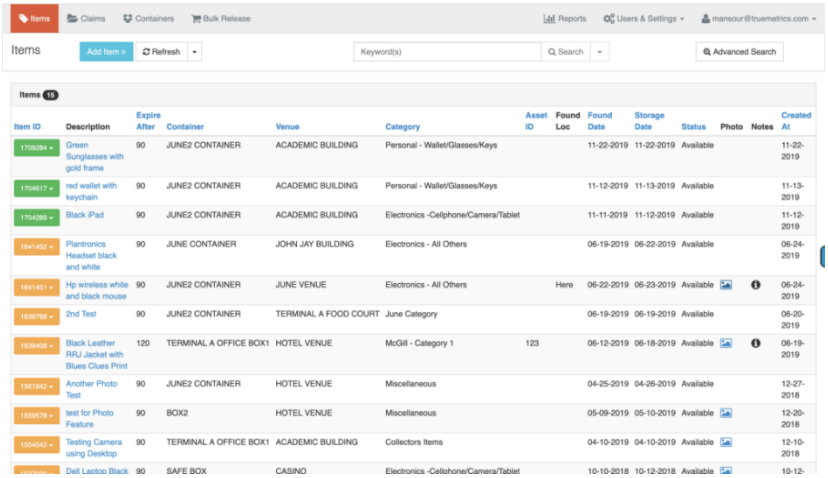

Figure 2.5 Lost Item List

2.3 Comparison of Current System

Based on the existing system, some key features that are deemed vital to be put in the proposed system. This may change depending on the clients' request.

Features	RMP e-Reporting System	UTAR Lost and Found Management System	RepoApp	Proposed System
Sign Up/Login	☑	☑	☑	☑
Edit Profile	☑	☑	☑	☑
Navigation Bar	☑	☑	☑	☑
Detailed Form	☑	☑	☑	☑
CRUD function	☑	☑	☑	☑
Print Report	☑	☑		☑
Notify status via email	☑	☑	☑	
Chatbot				☑
Integrate with website			☑	
Paid Service			☑	

Table 1: Comparison of features between systems

2.4 Summary

The chapter has highlighted the reviews of all three systems that are involved in complains of lost items. The procedure and usage of the system will differ due to its distinctive functionality and features. The proposed project will undergo its next phase after documented potential aspects that can be brought as an idea during development. In addition to that, a well-established system made by professional web-based developers serve as a guide to create a robust system.