# Introduction

Nowadays most of the sales and service company has started to implemented online system in order to make everything more efficiently and effectiveness for both customer and also management. In this era, many online marketplace have raised up, instead of selling product through marketplace, the trends of provide service by using this type of online platform are also become more and more.

In Malaysia, although there is already some platform are allow consumer to purchase for certain services though online such as Grab providing a platform for transportation service, and MyPrivateTutor providing a platform for educational services, but there is no such platform to allow consumer to look for some unpopular or specialized service on a platform, these service could be installation and repairing for specific item, or some services such as insecticide, porter services, room cleaning and other. People need to find for the service they want with their search engine in online. Even consumer has finally found their desired services but it may have some inconvenience problems such as outdated or incorrect information of the service provider and it caused consumer may need to spent much of effort and time to look for someone can provided service to them, this will cause them feel dissatisfied and tired. This online system is created to provide a platform to allow service user who using the platform to purchase services from the service provider who have joined the platform.

This is a Service Provide and Purchasing Platform have target for two of type user, which is service provider, and we will call them as “Servicer”, another type of user is service user/buyer which we will call them as “Client” in this article, both user can register to this platform, and client can request services such as installation, repairing and other commission service from servicer in order to complete what they want and need. Servicer can charge for the service fee for the service which they provided to the client to earn for their income, so both of them can will be fulfill each other’s demand through this platform. This online system is an “All-In-One” online platform which can provide many different kind of services for user and allow them look for their desired service with only one system, so they are able to filter these unnecessary result they found from normal browser such as Google, Yahoo. So client can save a lot of time to find their desired services by using this system.

## Objective

This system can allow client to save their time to looking for servicer, and use minimal effort to request services from servicer by integrating many type of services into a platform. For servicer, they will also to be allowed to looking for client in a shorter time and spending lesser effort. Other than that, it also provides convenience and efficiency to client and servicer by allowing them to use this system anytime and everywhere. Lastly, this system also ensure client to have secured services by using face recognition on servicer.

According to what I have planned, the hardware and software that users use to access this system is Laptop, Desktop and Tablet. Other than that, Smartphones can also be access to this system through application browser such as Google Chrome, or Android/iPhone built-in browser.

## Background

Electronic commerce, a.k.a. E-commerce, refers to buying and selling products and services on the Internet. E-commerce are not only limited in a forms, it can be happen in many forms, such as ordering goods, buying a service, or sign for a subscription to an information source. People nowadays would not able to imagine a life without E-commerce, because it will cause much of inconvenient and complicated to our daily life. E-commerce has been around for a long time, about 40 years ago, in between 1960 and 1982, “teleshopping” have been invented and carried out by Michael Aldrich, which can be seen as the precursor for modern online shopping. In the mid-1990’s, there are a big step of advancements in commercial use of the Internet.

Amazon is the one of the first E-commerce sites, which is an online bookstore started in 1995, and Amazon rapidly and finally it become the largest online retailer in the world. The market range of Amazon’s has expanded, the product they sell are not limited to book, it includes food, toys, trappings, furniture, electronics devices, video, music etc. There is other E-commerce marketplace are also successful, including eBat, which is an online auction site arised in 1995. (Miva, 2011)

After many years since the first commercial E-commerce website have been launched, there are already many type of product and services are available online. Grab have launched in 2012, and it is one of the successful e-commerce platform which focusing on service, it’s providing e-hailing service, food delivery service, and groceries delivery service (Dipen Pradhan, 2019).

## Advantages & Contributions

### Advantages

This online system for Service Providing and Commission Platform have many have several of advantages over the competition, which is cheaper, faster, secure, and flexible.

It is able to offer a cheaper service fee for client because there are many service providers which are not belonging to any companies, and our platform will never taking a cut of the service fees they have made done, so there are not extra charges for client.

After that, our system can provide the services in a short time, the services request process perform by client is short and easy, and we are using GPS to direct locate the client location and find for the client’s nearby service provider to accept and provide services to them.

Next, client does not need to worry about whether the service provider is unsafe, because we using face recognition system to ensure their have the same appearance to the photo which client can be viewed, they are required to provide their real identity to us when they register to be service providers in our platform and we have formulated a strict rules and regulations for them, so service provider are not able to perform somethings offence to client, otherwise they will be detected and get punishment.

Lastly, our system provides flexible to client because client is able to use the system everywhere and anytime. By using this online system, client just need use their device’s browser by accessing internet, and the operating hours and days of servicer is not limited, servicer can provide their service not only in normal working hours such as around 8a.m. to 7p.m., they can offer their services for any durations even 24 hours. So client can search for their desired services in anytime to get their services.

By the advantages listed, customer will be more likely to use our platform to solve their problems by getting services.

### Contributions

Due to the impact of pandemic COVID-19 and the MCO (Movement Control Order), according to the latest statistics established from Department of Statistics Malaysia on 2021, the unemployment rate of fourth quarter 2020 is 4.8%, since 2019 is only 3.3% of unemployment rate, it has increased 1.5% of population unemployed, increased a large amount of people into unemployment population.

In order to allow more population to have a job, this Service Provide & Commission Platform provide many job opportunities to everyone who are interested to be a service provider, as already mentioned previously, people can register as service provider to provide the services they are able to perform to earn income from client, so unemployed person can become a full-time or part time workers to work using the platform. This platform are able to reduce the unemployment rate of Malaysia.

## Project Plan

### Project Scope

The system is called Service Providing and Commission Platform, it is an web application which accessible by any browser from phone or computer by connecting to the internet network. We will develop it using ASP.NET and C# by using Visual Studio software.

### Project Functional Requirements

There are total 10 modules in this web-based system, me and my partner Tan Jia Seng will divide the work by arrange each of us develop for different modules and functions. But because our system having two types of user, so some modules we divide the work for two persons, I will focus on the Servicer-side functions, and Jia Seng will focus on Client-side functions. I will be involved on the development of Login & Register Module, Payment Module(Servicer-side), Servicer Module, Service Request Module(Servicer-side), Service Offer Module(Servicer-side), Membership Module(Servicer-side), Report Module(Servicer-side & Back-End User-side), and Back-end Module, the rest of modules and functions will be handle by my partner.

The first module is Login & Register module, there are divided into 3 types of authority access for this system, which included Client, Servicer, and Back-end User which to control and maintaining for this system. Different user will have the different functions after they login, such as Client can perform request for services, Servicer can accept the request sent by client, and back-end user can update the credit balance of client and servicer. Other than that, only Client and Servicer can register by using this module, back-end are only allowed to be maintained in Back-end module. Face Recognition will be implemented in this module to record and verify the user’s profile picture are valid.

For Payment module, there are 2 types of users which is client and servicer. For servicers, they will need to use this module to withdraw the money they have earned on this platform, some of the client would like to pay their service fee by using the credit in their platform wallet or credit card, so the payment made will be go into the servicer’s platform wallet, and they can withdraw it by requesting withdrawal from our platform, and our back-end user will verify it, once approved, servicer will receive their money by online transfer.

Other than that, Servicer module only used by servicer, servicer can perform actions by using the functions which they are able to access, they can maintain their profile, such as change their information or other settings. If they need help for using the system, they can also access to help function which can provide instruction to them.

The next is the Service Request module, it is used by 2 types of users including client and servicer. Client can request service by using this module and after that, this module will locate the client’s location and find the nearby servicers by GPS and notify them, servicers are able to view and accept the service requests if the system have assigned the service request from client. After that, servicers are also can choose to reject the service request they received from the client, they may need to provide a valid reason to reject the client.

After that, the Service Offer module is also used by client and servicer, it is an alternative module for client to looking for servicers, servicers can post the service they are offering (Maximum 5), there are many categories for the services, servicers are required to specific which category of service they provide and what service is it, so client to search for their service and request service from them initiatively.

For the next module which is Membership module, it is also used by client and servicer. For servicer, there are 3 Ranking for them, which is A Rank, S Rank, and SS Rank. The higher the ranking of the servicer, the higher exposure rate for their offered services. The ranking of the service will be displayed on their profile, and it can be viewed by clients. Higher ranking may be able to attract more clients since they have gained better trust from clients and also proved their quality of work. The ranking of the servicer can be upgraded depending on the number of services they have completed within 30 days. If they completed more than 10 services will become A Rank, 20 will become S Rank, and lastly 25 will upgraded to the highest rank which is SS Rank.

Other than that, Report module are also divided into 3 types of user including client, servicer, and also back-end user, there are different reports for each type of user, client’s report will more on the history purpose, servicer’s report will more on the sales purpose, and back-end user’s report will more on the analysis purpose of the platform.

Lastly, we have a Back-end module which are used by back-end user, after back-end user login, they can maintain for back-end user account in order to control who can access to the backend. After that, back-end user also can process the credit topup from client after client have transferred money to the bank of our organizations. Next, back-end user can also view and approve or reject the user credit withdrawal request, if the request is accepted, back-end user will transfer the requested amount to the client or servicer bank account.

Below listed modules that will be included in this project:

**Login and Register Module**

* The system is able to authenticate the identity of users by email address/phone number and password, and also perform authorization by granting access depending on user roles(Client, Servicer, Back-end user).
* Client and servicer can recover their password when they are forgotten by sending a PIN number to their email or phone. They can also recover their password by answering security questions.
* Client and servicer can reset their passwords by entering existing passwords and new passwords.
* New users can register their user account to be as “Client” or “Servicer”. They are required to provide their information such as their name, date of birth, mobile number, email address. For servicer, they need to provide additional information such as their IC number, biography, qualification (if any), experience, type and categories of service they provided.
* New users are able to verify their email address or phone number. They can also register their account by login to their Google account.
* Client and servicer are required to perform Face Recognition by comparing their face on profile picture to their face on a real-time camera.

**Payment Module**

Client Side

* Client are able to pay their service fee to the servicer using cash, platform wallet, or credit card.
* Client can top up their credits into their wallet to pay for the services.
* Client can withdraw their credit from the wallet into their bank account.

Servicer Side

* Servicer are able to subscribe for the platform which the subscription fee is based on the duration of the subscription. Payment can be made through bank transfer or credit card.
* Servicer are restricted to accept commission if they failed pay for subscription fees within deadline.
* Servicer can withdraw their credit from the wallet into their bank account.

**Servicer Module**

* Servicer are able to maintain the profile such as edit profile details, servicer expertise area, privacy or delete their own account permanently.
* Servicer able to view their client profile when the client has made a request from them.
* Servicer are able to view the review from clients after they have provided service for them.
* Servicer can access to help functions such as view instruction, Q&A list, and also provide feedback to the platform.

**Service Request Module**

Client-side

* Client are able to post a service request on the platform. The request details which include the request categories, category type, remarks etc.
* The system able to send client service requests to the related servicers who meet the requirement of the request details.
* Client are able to locate their current location using the GPS function or input their current address manually.
* Clients are able to view back their service request history which include the completed and cancelled service records.
* Client are able to cancel their services with valid reason after they have requested. They may need to select a cancel reason option or write remarks to justify their cancel reasons.
* Client can provide confirmation to the system after the service provided by the servicer had completed.
* Client able to provide star rating and write a review to the servicer after they have completed your request.

Servicer-side

* Servicer are able to view all the service requests from the request list if they have received more than one request from different clients.
* Servicer are able to accept the service request from the client after they have received it.
* Servicer able to reject the service request they received from the client, they may need to provide a valid reason to reject the client.
* Servicer may be able to view back their service history which include the cancelled services requests and completed provided service records.

**Service Offer Module**

Client-side

* Client able to search for the service they desire by entering keywords or selecting the type of service and categories provided. (E.g. Computer)
* Client able to sort the service results which have been listed out by ascending or descending by name, pricing, servicer’s review.
* Client able to future filter the result by selecting the type of service, category, and location.
* Client able to start a conversation with the servicer once they want to ask more information or have decided to have the service, Chat module will be used for the conversation.
* Client can add the service to their Favorites if they may need to use the service in future.

Servicer-side

* Servicer can post the service they want to offer (Maximum 5) by providing details such as type of service, categories, service name, minimum charges, location, working day, available times, and remark.
* Servicer can edit the details of the posted service.
* Servicers can delete their offering service if they no longer want to accept that service.

**Client Module**

* Clients are able to maintain their profile by editing profile information and details or delete their own account permanently.
* Clients are able to view servicers profile and their reviews in the servicer offer page or when the servicer accepts their service request.
* Clients can access to help functions such as view instruction, Q&A list, and also provide feedback to the platform.

**Chat Module**

* Users are able to send messages in the system which usually provide for client and servicer to communicate.
* Users are able to send voice messages to each other in the system.
* Users are able to send a photo or attachment from their gallery or file explorer to each other in the system
* Users are able to use their camera or webcam to capture and send the photo to each other.

**Membership Module**

Client-side

* Client can earn reward points when they pay for services using our platform, the amount of reward points will be gained depending on the client’s Rank.
* Client can convert points into cash discount for their next service payment in this platform.

Servicer-side

* Servicer can upgrade their ranking by the number of services they have completed within 30 days.
* The higher the ranking of the servicer, the higher exposure rate for their offered services.
* The system is able to display the ranking of the service on servicer’s profile, and it can be viewed by clients.

**Report Module**

Servicer-side

* Servicer are able to view the Service details report, Annual Service Analysis Report, Service Category Analysis Report, Review Report, Wallet transaction report.

Client-side

* Client able to view Service request report, wallet transaction report.

Back-end user-side

* Back-end user able to view the Subscription Volume Report, Sales Transaction Volume Report and User Type Ratio Analysis Report

**Back-end Module**

* Back-end user of this system can login into the back-end, and perform maintenance of the system.
* Back-end user can create new back-end users accounts.
* Back-end user can view client and servicer feedback.
* Back-end user can verify client topup and assign credit for client wallet.
* Back-end user can perform the withdrawal process for servicer.

### Project Non-Functional Requirements

**Availability**

* Availability is one of the important characteristics of system, this characteristic refer to the amount of time the system is running, the system will have a downtime which are not available when it is undergoing a repair or maintenance, or lapses. Availability is more important to an online-based system which users can access it in anytime.
* **Target goal:** This system are required to be active all the time, only 1 hour for maintenance time are allowed per week, the system should not have failure or system down time occur on usual running time. Client and servicer might need to access and use the system anytime and anywhere, so it must ensure the system won’t suddenly stop working.

**Security**

* Security refer to the system able to protect the users from any malicious attack. It is very important to an online system because online system will be more vulnerable comparing with offline-based system, attacker may launch many type of attack such as SQL injections, Brute Force Attack, and Distributed Denial-of-Service(DDoS) which negatively affect the organizations reputation or financial loss, and may also cause harming the users of the system.
* **Target goal:** This system is required to be well protected, ensure users data kept confidential by restrict unauthorized access, using authentication and authorization to verify the access right of the user, only the authorized person can view the user account’s information such as IC number, bank account number etc. Data integrity also need to be ensured, unauthorized access should not able to change user’s information and data, such as the wallet credit of user can only be used by the authorized user. Apply SSL and Firewall to protect the website from attacker.

**Performance**

* Performance refer to how fast the operation of system. It is also an important characteristic because a slow processing system would spend much of user’s time to wait for the operation, users may feel dissatisfy and frustrated by using the system, no one would like to spent redundant time on the system. A fast processing system would enable user to feel satisfied, they will have a good user experience and feel the system have high quality.
* **Target goal:** Every time taken for processing in this system should not longer than 5 second, 5 second is the maximum time to process data. For example, after user entered their username and password and proceed, the process of authentication and authorization should not longer than 5 second in order to ensure the experience of user.

**Usability**

* Usability refer to how easy the system can be used. If the system are used by novice user, usability are more important, because novice user may not possess the knowledge how the system work and how to operate it, an usable system will allow novice user to complete the task they want.
* **Target goal:** The system should be easy–to-use, and ensure the effectiveness, efficiency and user satisfaction of the system by providing a well-designed interface, feedback and guidance for user, in order to assist client to complete the process for requesting services from servicer.

**Reliability**

* Reliability refer to the probability and percentage of the software performing without failure or errors for a specific number of uses or amount of time. A reliable system should not failure and produce errors in anytime when users are using the system, it is important, because if a system occur failure and produce errors frequently, the system will become not effective and users will not trust the result of the system.
* **Target goal:** The system should be reliable, it should not produce any visible or non-visible errors when client and servicer are using the system, especially for main part of this system which is the service request functions, it should always operate well, and the chance to occur error should less than 0.1%.

### Development Methodology

After me and my partner Jia Seng performed analyzation and discussion, we decide to use **prototyping**. By using this methodology, the system will be tested and refined due to per user feedback repeatedly until a final completed version of prototype is produced. The reasons why we select this software process model is because it does not require many human resources, currently we are only 2 person working for the system, so it consider lack of human resources. After that, the second reasons is project members have not enough experience, me and my partner have the experience of developing web application, but we does not have experience to develop some advanced technology such as GPS locating or Face Recognition. Next, the third reason is user requirement, we are not clear about the exact requirement from user, the existing requirements for Service Provide and Commission Platform is created by using the needs and demands of targeted users, but it is not details as functional requirements, so we may need to gather more requirements while developing the system. Lastly, we have a long development time, the overall project duration is more than 6 months, it is sufficient for implementing this methodology.

We will use **Evolutionary prototyping** instead of throwaway prototyping, this model can speed up the delivery of the system because we do not need to develop the system start over again, and it will be more likely to meet the user requirements.

### Project Schedule

Below shows the schedule for our project flow:

|  |  |  |
| --- | --- | --- |
| **Task** | **Task’s Goal** | **Date** |
| System Ideas Confirmation | Get approved for the proposed system and ideas. | 25/2/2021 |
| Proposal Submission | Submit Completed written proposal to Supervisor. | 5/3/2021 |
| Project Research and Analyze | Conduct research activites for project background and complete literature review and submit to Supervisor. | 25/3/2021 |
| Project Requirement Analysis | Conduct fact gathering and evaluate the gathered data. | 27/5/2021 |
| Initial System Design | Complete the design for interface, database, processes, architecture, and report and submit to Supervisor. | 11/6/2021 |
| Development of System Prototype | Complete the development of preliminary stage of system with all essential functions and perform testing with Supervisor. | 10/7/2021 |
| Evolutionary Prototype Feedback & Improvement | The prototype system will let supervisor to give feedback, and additional functionality or improvements will be implement to the system. Totally there will have 3 phrases of the cycle. | 7/8/2021 |
| System Final Development | The improved prototype system from previous stage will have a last improvements according to the final requirements and documentations, and lastly check and vefiy with Supervisor. | 22/8/2021 |
| Test Plan Design and System Preview | Select the appropriate tesing methodologies and design each of the test case for the specified testing scop and perform system preview with Supervisor. | 16/10/2021 |
| Final System Testing | Present and test for the system to supervisor and moderator to prove the quality assurance. | 2/11/2021 |
| Draft FYP Report Submission | Submit Draft FYP Report which have integrated with previous reports and test plan. | 20/11/2021 |
| Final FYP Report Submission | Improve the Draft FYP Report, and produce a finalized FYP report and submit to Supervisor | 1/12/2021 |

### Development Environment

Development environment refer to the machine and programming tools will be implemented for developing this system.

Hardware

* Desktop/Laptop
* Mobile Phone

Software

* Microsoft Windows 10
* Android OS
* Visual Studio 2019
* Google Chrome

## Project Team & Organization

|  |  |  |
| --- | --- | --- |
| **Task Name** | **Marcus Chuah Seong Hwa** | **Tan Jia Seng** |
| **Planning: Current Phase** | ✔ | ✔ |
| Identify Project Problems |  |  |
| Create Project Solutions |  |  |
| Define Target Market and Audience |  |  |
| Create Project Milestone |  |  |
| * Identify Development Model |  |  |
| * Identify Research Methods |  |  |
| * Plan Project Schedule |  |  |
| * Set Task Allocation |  |  |
| **Conduct Research Activities** | ✔ | ✔ |
| Research Project Background |  |  |
| Review Literature |  |  |
| **Requirement Analysis** | ✔ | ✔ |
| Design Questionnaire Question |  |  |
| * Determine required information |  |  |
| * Plan the questions content |  |  |
| Conduct Requirement Gathering |  |  |
| Evaluate Gathered Data |  |  |
| Build SRS (Software Requirement Specification) |  |  |
| **Initial System Design** |  |  |
| Interface Design |  | ✔ |
| Database Design | ✔ |  |
| Processes Design |  | ✔ |
| Architecture Design | ✔ |  |
| Report Design | ✔ | ✔ |
| **Prototype Development** |  |  |
| Develop Login & Register Module Prototype | ✔ |  |
| Develop Payment Module Prototype | ✔ |  |
| Develop Servicer Module Prototype | ✔ |  |
| Develop Service Request Module Prototype |  |  |
| * Develop Servicer-Side Service Request Module Prototype | ✔ |  |
| * Develop Client-Side Service Request Module Prototype |  | ✔ |
| Develop Service Offer Module Prototype |  |  |
| * Develop Servicer-Side Service Offer Module Prototype | ✔ |  |
| * Develop Client-Side Service Offer Module Prototype |  | ✔ |
| Develop Client Module Prototype |  | ✔ |
| Develop Chat Module Prototype |  | ✔ |
| Integrate Modules Prototype | ✔ | ✔ |
| Internal Prototype Testing | ✔ | ✔ |
| **Prototype Evaluation Cycle (Evolutionary)** | ✔ | ✔ |
| First Phase Evaluation |  |  |
| * Analyze Supervisor Feedback |  |  |
| * Design Refinement Plan |  |  |
| * Refine Prototype |  |  |
| Second Phase Evaluation |  |  |
| * Analyze Supervisor Feedback |  |  |
| * Design Refinement Plan |  |  |
| * Refine Prototype |  |  |
| Final Phase Evaluation |  |  |
| * Analyze Supervisor Feedback |  |  |
| * Define Missing Functionality and Incorrect Features |  |  |
| * Design Refinement Plan |  |  |
| **Software Development** |  |  |
| Develop Login & Register Module | ✔ |  |
| Develop Payment Module | ✔ |  |
| Develop Servicer Module | ✔ |  |
| Develop Service Request Module |  |  |
| * Develop Servicer-Side Service Request Module | ✔ |  |
| * Develop Client-Side Service Request Module |  | ✔ |
| Develop Service Offer Module |  |  |
| * Develop Servicer-Side Service Offer Module | ✔ |  |
| * Develop Client-Side Service Offer Module |  | ✔ |
| Develop Client Module |  | ✔ |
| Develop Chat Module |  | ✔ |
| **Unit Test** | ✔ | ✔ |
| Perform Unit Testing |  |  |
| Document Issue Found |  |  |
| Bug Fixes |  |  |
| **Integration Test** | ✔ | ✔ |
| Perform Integration Testing |  |  |
| Document Issue Found |  |  |
| Bug Fixes |  |  |
| **User Acceptance Test (UAT)** | ✔ | ✔ |
| Perform UAT Testing |  |  |
| Document Issue Found |  |  |
| Bug Fixes |  |  |
| **System Release** | ✔ | ✔ |
| Finalize and Release system |  |  |

## Chapter Summary and Evaluation

In this Chapter 1, I have stated brief introduction about the problem for this society and its solution and it is the reason why I select this Service Provide & Commission Platform as my final year project. Other than that, there are the objective for this new system and also the advantages of our development and the contribution of our solution. After that, there are the project scope which contains list of the modules for the system and its description, functional and non-functional requirement Following, there are the methodology, schedule, and also the task allocation for this entire project.

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