

EZOrganize: An Online Organization Organizer

Muhammad Danial Hakimi Mohd Habibullah¹, Masitah Ghazali²

School of Computing, Faculty of Engineering
Universiti Teknologi Malaysia
Johor Bahru, Malaysia

¹danielhabib23@gmail.com, ²masitah@utm.my

Abstract—During COVID-19 pandemic outbreak, some organizations go fully digital as they are required to work from home. It affects some organizations that usually work face to face as several problems have arisen due to this matter. The Association of Human-Computer Interaction Malaysia (myHCI-UX) is one of the many affected organizations who had similar experiences of improper event management, misleading information during an online meeting, and the use of different platforms to get things done. Using different types of applications can lead to loss of data if not properly manage. This project aims to develop a system that can perform several essential functions to organize organizations, particularly myHCI-UX, effectively. The proposed system is a web application that can be accessed through web browsers because it is enhanced with Responsive Website Design (RWD). The requirement is gathered and analysed to find the best solution for it and the system are designed according to the requirements. Model View Controller (MVC) is used as its architecture and Laravel as its framework. This system is introduced to ease the process of managing an organization. With the introduced modules, everyday tasks in the organization will be more organized and at the same time, it can increase the efficiency of the organization. The finished system was satisfying, to say the least, when the user can use one place to gather all functionality of several systems. With further development, this project may also benefit other similar organizations.

Keywords—organizer; organization; online tool; responsive website design;

I. INTRODUCTION

Managing a company, organization or association is not a simple matter that can be taken lightly. From the very basic task like managing the user profile data to how they want to manage the report at the end of every year. Many organizations from the smallest group of people to big organizations out there used multiple applications that have been developed to organize their organization neatly [1, 2].

For years people have been using several separate applications to manage their organizations. Using separate applications can cause confusion, consume more time to learn how to use, and can take up a lot of space in the storage. After some time, a single application must be deployed in order to tackle this problem. An efficient way must be figured out thus

an organization organizer (EZOrganize) is proposed. EZOrganize is a web-based system where we try to put several application functions together so that users do not have to open or install several applications just to manage their organization

II. BACKGROUND AND RELATED WORK

A. Malaysia Human-Computer Interaction Association

The myHCI-UX association is a non-profit organization committed to bringing awareness to the fields of HCI and UX in Malaysia [3]. In the past, this organization has created many events to help the students, lecturers, or even working people out there to utilize HCI and UX the correct way. Some of the events were conducted through the online platform and some of it was conducted through physical interaction.

Up to this day, myHCI-UX still uses several applications to manage society. From the interview held, there are several issues that have been brought up because of these applications. Some of the executives were complaining about how complicated things are when they use several, different applications to manage society. The applications or systems that they use are Gmail, Google Spreadsheet, Google Document, Google Form, and Google Drive. There is currently no system that serves the exact same functionality as the proposed system. However, there are multiple applications that execute the same functionality that is needed for the proposed system to function as it is intended to.

B. Analysis and Comparison of Current Systems

1) Google Drive

Google Drive is a platform that allows users to use it as cloud storage. Users can store multiple things in Google Drive with a storage limit. It also allows users to share their work with other users. Users can also sync the google drive with their computer where every change in the synced folder in your computer will be directly synced with the Google Drive. Incidents can happen where a folder is deleted without concern thus this feature will come in handy. Users can also delete unnecessary things in Google Drive that can allow users to enter other stuff in there. Users also can bookmark any important stuff that they want to refer to later. When it comes to proper data management Google Drive is the best site to manage the data.

A lack of adequate data management can leave businesses with incompatible data silos, inconsistent data sets, and data quality issues, limiting their capacity to run business intelligence (BI) and analytics applications — or, worse, leading to erroneous conclusions. Finding the best site to manage the data effectively is an important factor when managing an organization. But there is still something lacking from the site. When new data has been added to the Google Drive while collaborating with someone, they will not notify them directly in the Google Drive which can lead to overlooking. “Simple reminders have been suggested to be useful because they operate as cues to prevent potential memory failures. According to several studies, as many as 80–90 percent of patients are happy about receiving a memory-jogging reminder” [4].

2) MyUTM

MyUTM is a website where every student, staff, and lecturer has an ID to access it. The focus is not on the overall functionality of the MyUTM but more on the dashboard of the website. The way the information is provided in the dashboard is good to be used in the user module. The dashboard contains the personal information of the user. Another tab that shows the user activity that the user has joined or organized is also included. The award tab is also provided in the dashboard where we can see all of the awards that the user has achieved so far. Slip Tab is there to provide important slips including examination results, examination slips, and course registration. This web is also the best when compiling multiple functions into a website. Google has stated that only two domains per search key [4] so it is better to compile multiple functions under one domain so that users can access multiple functions.

TABLE I. COMPARISON BETWEEN GOOGLE DRIVE AND MYUTM

Features	Google Drive	MyUTM
Platform	Web	Web
Business Model	Platform	Platform
Service Domain	Store document	Managing user
Target Customer	Everyone	UTM student
Area of Service	Around the World	UTM student

After comparing both of the applications, a web application has been developed to combine both of the system’s functionality. For example, Google Drive does not have a function to list the information that is needed to be shown because it can only store data in the type of document while myUTM has it. So, with both systems having their own functionality, the developed system has been combining both of the system’s functions into a brand new web application

III. METHODOLOGY

The importance of software development methodologies is critical, as they are commonly used in a variety of software development projects. Furthermore, depending on the nature of the project, the methodologies work well in certain situations. It is not uncommon for a methodology that works well for one

project to fail to work well for another. Furthermore, none of these methods are foolproof, as each has its own set of advantages and disadvantages. After extensive research and comparison of the pros and cons of different types of methodologies, agile software development methodology has been used in the developed system.

Agile methodology was introduced in 2001 formally when seventeen technologists wrote the agile manifesto. After discussing among themselves the agile manifesto, they came up with four major principles for agile project management with a single goal which is to develop better software. The four major principles are individuals and interactions over processes and tools, working software over comprehensive documentation, customer collaboration over contract negotiation, and responding to change over following a plan.

A. Requirements and Design Phase

The requirements were gathered through various meetings with the stakeholders. Fig. 1 is the use case diagram of the 18 use cases. The use cases were developed based on the list of the functional requirements in Table II.

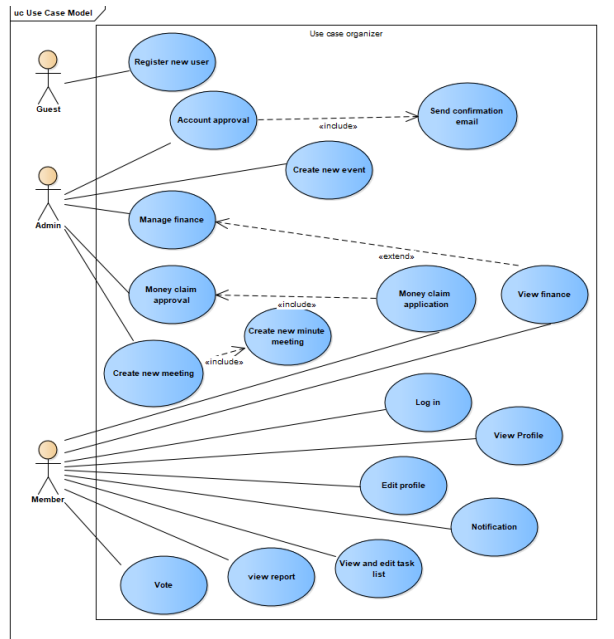


Figure 1. Use Case diagram of EZOrganize

TABLE II. FUNCTIONAL REQUIREMENTS OF EZORGANIZE

ID	Functional Requirement
FR001	Guest shall be able to register themselves into the system
FR002	The admin shall be able to approve the guest registration
FR003	The admin shall be able to send automatic email to the applied guest
FR004	The user shall be able to log into their account
FR005	The user shall be able to view their profile

FR006	The user shall be able to edit their profile
FR007	The user shall be notified for the next activities
FR008	The user shall be able to view and edit task list
FR009	The admin shall be able to create new event for the organization
FR010	The user shall be able to view report
FR011	The user shall be able to register into an event
FR012	The admin shall be able to create new meeting
FR013	The admin shall be able to create new minute meeting meeting
FR014	The user shall be able to vote for the next executive members
FR015	The user shall be able to apply for the money claiming purposes
FR016	The admin shall be able to approve the money claiming
FR017	The admin shall be able to edit all the money allocation within the organization
FR018	The user shall be able to view the money allocation

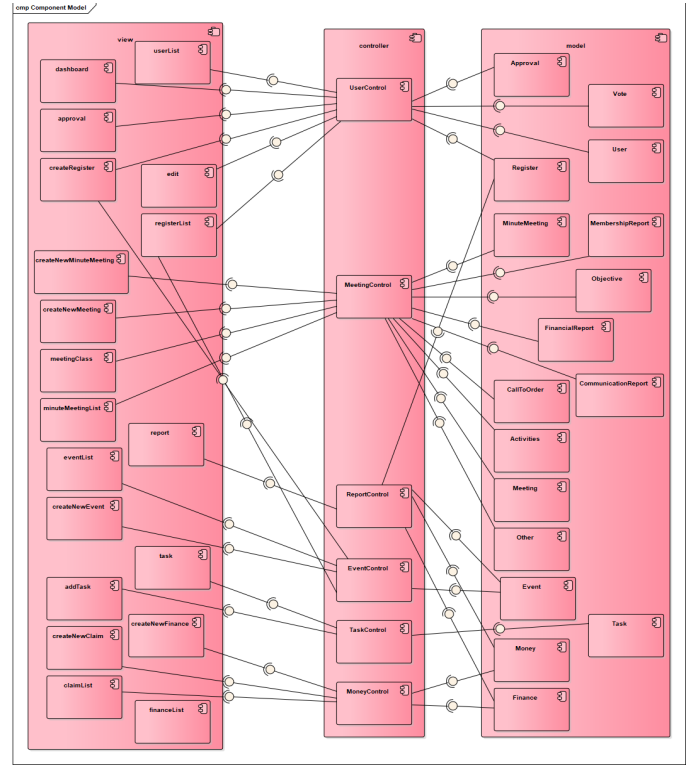
The component diagram (see Fig. 2) of the system which consists of 3 packages which are view, controller, and model. The diagram will show how each of the components interacts with each other. The view will request the data needed from the controller. After receiving the request from the view, the controller will interact with the model in order to receive the data and send it back to the view. The view can never interact with the model directly and all the time controllers will act as the intermediary between the model and view.

B. Development Phase

Using all the requirements that we have collected during the first phase; we have created the front end and back end for the system. Using the Laravel framework we have created how the backend works according to the gathered requirement [5]. While building up how the system should act according to the requirement, we built the front end which is one of the most critical parts. The front end will decide whether the user can understand the system and easily use the system. A bad front end means a total failure. The user does not care how the system is programmed. Users are only interested in whether the system is easy to use or does it work accordingly.

Laravel is the front end that act as the framework while on the front end we will use Bootstrap and Vue. Laravel does not mention any fixed JavaScript or CSS pre-processors that can be used, Laravel does provide a basic starting point using Bootstrap and Vue [6]. Regarding the front-end Bootstrap and Vue, it is usually installed by default using NPM.

Figure 2. Component Diagram of EZOrganize



Laravel is an open-source PHP framework with built-in features that make developing web apps easier and faster. Laravel works on MVC (Model-View-Controller) architectural pattern [7]. Model component stores data and its related logic. The Controller is the part of the app that deals with user interaction. A View is the part of an application that represents how data is presented. Table III presents the software that are used for this project.

TABLE III. SOFTWARE USED

Software	Explanation
Visual Studio Code	Platform to code for the proposed system
MySQL	Act as a database to store all of the data
Laravel	Act as a framework
PHP	Programming language
Google Chrome	Web browser to run the system
Enterprise Architect	An UML modeling tool for developing software architecture and design.
PostgreSQL	A database to manage CRUD operation on data during the deployment and testing phase.

C. Test and Review Phase

The system has been put to a test to find any bug or error that made the system unable to perform its intended function. For the

testing phases, we have undergone one type of testing which is black-box testing, and usability testing with the association.

IV. SYSTEM INTERFACE AND TESTING

A. User Interfaces

The following Fig. 3 till Fig. 13 illustrates the interfaces of EZOrganizer. Fig. 3 allows user to log into the system which will unlock every functionality that has been developed in the system. Fig. 4 and Fig. 5 show two different pages to accommodate the different types of members; professional or student. If the user is trying to register to the system, they can click on register for students and enter the required information. But if they try to register as a professional, they are asked to upload a payment slip as proof that they have paid for the membership.

Figure 3. Login Page

Figure 4. Register as Student

Figure 5. Register as Professional

After registering to the system, the user needs to be verified before accessing the web application. After every approval or

rejection, an email will be sent to the user to notify them whether the application is a success or not (see Fig. 6).

Figure 6. Approval Page

The homepage is different for the user and admin because there are some certain functions that normal user cannot access such as the approval function, because only the admin can approve the registration. Fig. 7 and Fig. 8 illustrate the differences.

Figure 7. Homepage Admin

Figure 8. Homepage User

The profile page (Fig. 9) shows all data that have been filled during the registration and they can change the password after clicking on the edit button. User can only change their password because changing their name and email is not possible (Fig. 10).

Figure 9. Profile

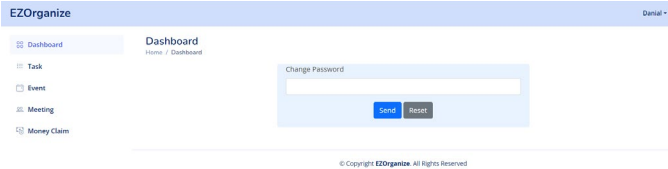


Figure 10. Edit Password

All notifications are notified through email. Every single notification is sent automatically whether it is for account approval, notify meeting, or claim approval (see Fig. 11). Meanwhile, the Task page displays all tasks that have been added. Users can also add the task after they click on the add button (see Fig. 12).

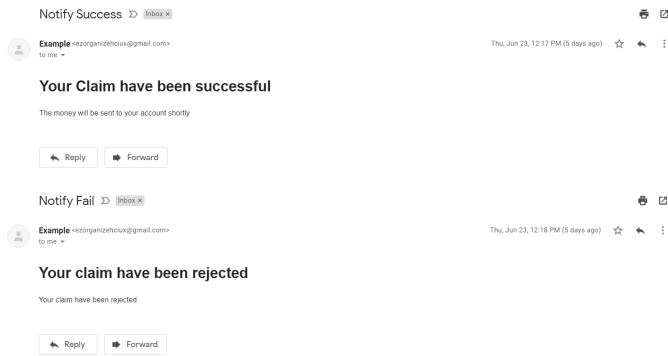


Figure 11. Notification



Figure 12. Task

This Event page will display all events that is organized by the organization. They can check the participants list for the specific event after clicking “List of Participants” at the last row and column of the table.



Figure 13. Event Page

B. System Testing

Dynamic testing was used to test the system regarding its functionality. The primary goal of dynamic testing is to guarantee that software functions properly before, during, and after installation in order to produce a stable product free from significant faults. Black box testing is the chosen method for the dynamic testing, while usability testing is conducted to receive feedback from users.

Black-box testing necessitates the execution of the system's code in order to monitor any undesired actions. For the black-box testing, a total of eighteen test cases were conducted. To put into action, test cases are prepared using valid or invalid inputs to be used in black-box testing.

Usability testing involves testing a product on real users to evaluate its usability. In an industry where technology is changing rapidly, direct feedback on the way users interact with it is indispensable. The goal of usability testing is to determine whether the application can fulfil its objectives. It is possible to find out if users are able to accomplish specified tasks through usability testing.

V. RESULTS

Table IV shows the results from the Black-box testing executed to all 18 use cases, which 100% are passed.

TABLE IV. OUTCOMES OF BLACK BOX TESTING

ID	Test Cases	Expected Result	Pass / Fail
TC001: Register New User	2 Valid	Account registered	Pass
	4 Invalid	Display error message	Pass
TC002: Account Approval	2 Valid	Account approved	Pass
TC003: Send Confirmation Email	1 Valid	Email is sent	Pass
TC004: Log In	1 Valid	Log into the system	Pass
	4 Invalid	Display error message	Pass
TC005: View Profile	1 Valid	Profile Display	Pass
TC006: Edit Profile	1 Valid	Edit Password	Pass
	1 Invalid	Display Error Message	Pass
TC007: Notification	1 Valid	Send notification through email	Pass
TC008: View and Add Task	2 valid	Display and add task	Pass

	1 Invalid	Display Error Message	Pass
TC009: Create New Event	1 Valid	Successfully add event	Pass
	3 Invalid	Display Error Message	Pass
TC010: Register to Event	1 Valid	Register to Event	Pass
	4 Invalid	Display Error Message	Pass
TC011: View Report	1 Valid	Successful view report	Pass
TC012: Create New Meeting	1 Valid	Successful create new meeting	Pass
	4 Invalid	Display error message	Pass
TC013: Create New Minute Meeting	9 Valid	Successful add new minute meeting	Pass
TC014: Vote	1 Valid	Successful vote	Pass
TC015: Money Claim Application	1 Valid	Add new claim	Pass
	4 Invalid	Display Error Message	Pass
TC016: Money Claim Approval	2 Valid	Money Claim is Approved	Pass
TC017: Manage Finance	1 Valid	Successful add finance	Pass
	4 Invalid	Display Error Message	Pass

A meeting with four myHCI-UX was held in order to undergone the usability testing. Each of them were asked to perform tasks related to their job scope. All tasks were successfully performed. The feedback received from the committee are, (i) to add a layer for the account approval.

Before the account can be approved it is needed for the admin to review the payment receipt before they can approve the membership, and (ii) to add an automatic letter system where a letter of membership is sent through email after an account is approved.

VI. CONCLUSION

This paper overall provides a clear explanation of the EZOrganize system. How it uses several technologies to help build up a system with functionalities that can certainly help other people out there to ease their management system. The paper provides a clear explanation of all of the requirements and also the testing phase to make sure that the system is working as intended. In the future, the plan is to increase the functionality of the system to the next level.

ACKNOWLEDGMENT

Special thanks to myHCI-UX for making this project possible.

REFERENCES

- [1] TransWorld International, "6 Reasons Why Data Management is Important to Any Organisation". Retrieved July 20, 2021 from <http://transworldintl.com/2018/06/05/6-reasons-why-data-management-is-important-to-any-organisation/>.
- [2] M. Pizzo, "The Importance of Data Management In Companies". Retrieved July 20, 2021 from <https://www.ringlead.com/blog/the-importance-of-data-management-in-companies>
- [3] Association of Human-Computer Interaction Malaysia (myHCI-UX), Retrieved July 20, 2021 from myhci-ux.org
- [4] S. McLean, M. Gee, A. Booth A, "Targeting the Use of Reminders and Notifications for Uptake by Populations (TURNUP): a systematic review and evidence synthesis", Southampton (UK): NIHR Journals Library; 2014 Oct. (Health Services and Delivery Research, No. 2.34.) Chapter 6, Discussion, Oct. 2014. Retrieved July 20, 2021 from <https://www.ncbi.nlm.nih.gov/books/NBK260107/>
- [5] E. Haines, "Should I have multiple websites for one business?", Hallam Internet, Sept. 2019. Retrieved July 20, 2021 from <https://www.hallaminternet.com/should-your-business-have-more-than-one-website/>.
- [6] C. Tim, "What is Laravel? Explain it like I'm five", Dec. 2019. Retrieved July 20, 2021 from https://dev.to/creativetim_official/what-is-laravel-explain-it-like-i-m-five-19eb.
- [7] Laravel, "Introduction". Retrieved July 20, 2021 from <https://laravel.com/docs/4.2/introduction>.
- [8] Brainvire, "Six Benefits Of Using MVC Model For Effective Web Application Development". Retrieved July 20, 2021 from <https://www.brainvire.com/six-benefits-of-using-mvc-model-for-effective-web-application-development/>