PROJECT

CST291-2

PROJECT PROPOSAL

E-Cargo Management System

Group No: 8

Computer Science and Technology

Department of Computer Science and Informatics

Uva Wellassa University

April 2022

Group No: 08

Project Name: E-Cargo Management System

Group Members:

No	Name	Registration No	Email	Contact Number
01	M.F.F.Nuha	UWU/CST/19/055	cst19055@std.uwu.ac.lk	0767676415
02	V.H.Wickramasinghe	UWU/CST/17/066	cst17066@std.uwu.ac.lk	0773290629
03	R.M.S.A.Rathnayaka	UWU/CST/19/023	cst19023@std.uwu.ac.lk	0759043828
04	M.N.F.Yusra	UWU/CST/19/052	cst19052@std.uwu.ac.lk	0773018808
05	K.A.V.M.Kodithuwakku	UWU/CST/15/020	cst15020@std.uwu.ac.lk	0717029439

Name of the Supervisors:

No	Name	Email	Contact Number
01	Ms. Poornima Jayahtunga	poornima@uwu.ac.lk	0702718301

Approval Signature:

Date:

……..

Evaluation Panel Member

Date: Date:

Ms.Poornima Jayathunga Mr.Thilina Gunarathne

Project Supervisor Project Coordinator

Contents

Chapter 1. Introduction

1.1 Title of the project

E-Cargo Management System

1.2 Project Description and Motivation

When we consider about our daily lives as human beings, we come across a wide range of items and services to choose from. In this situation, the trade of goods and services among a group of individuals or within a community is extremely essential to success. Cargo systems are used on a regular basis to carry our goods or products from one location to another in a safe and secure manner.

Meanwhile as a result of cargo management systems, now we have access to the services we require in order to convey our products across the country. Composed essentially of two rails mounted in the truck bed to aid in the organization and security of our cargo, cargo management systems are becoming increasingly popular. This set of cargo cleats moves back and forth on these rails, allowing us to secure our stuff. In the case of heavy, irregularly shaped objects that move around while being transported, this can be extremely useful.

Moreover this is a system or program that we plan to create in order to computerize all of the services and operations that are now carried out in a cargo system, which can save time and money. An analysis and study conducted by our team members revealed that there is no evidence in our country for an internet-based cargo management system that allows users to easily perform all of the activities with a single click while sitting in the comfort of their own home with high security and evidence. This system is therefore very necessary in our country in order to keep track of the services and products we provide in a safe and secure manner, which provided us with the inspiration to develop a website for an E-Cargo Management System.

1.3 Project Background

Technology is playing a major role in our daily life. People in this modern era are in a rat race towards the advancement of technology and they normally prefer to select an easiest way in completing their tasks. Even though they look for an easiest way they are definitely very concern about their security, the time they spent and the cost that they spent towards anything.

In this mean now a days most of the people are transferring their goods from one place to another place, and it can be local or international. Similarly, the people who are in overseas are also sending so any products to their loved ones and relatives. But in most of the developed countries it is really very easy for them to transfer their good and to track them accordingly and they are sure about the arrival of the product to the perfect destination.

But according to the study that our team members carried out there is no any such proper system available in our Country Sri Lanka where our citizens who are working in overseas can easily transfer their products with in a single click and observe its status until their destination.

Moreover, during the process of its transection if any damages or if any unavoidable circumstances caused for their products there is no any proper evidence for them to climb the insurance for their products. Sometimes it really makes them in a great loss and it make them feel insecure and sometimes they get disappointed and it finally have a huge bad impact on the economy of the country. Further the people who work in tax department are also sometimes facing several difficulties in calculating the tax for the particular products and sometimes they take advantages like they illegally take some extra tax too. Meanwhile it also consumes much time for them to calculate and finalize their works.

So, an internet-based E-Cargo Management System will definitely be a perfect solution when considering the above-mentioned aspects and as there is no any perfect websites have been implemented so far in our country definitely, we can give this system as a solution to them. Where our system will consist of several features like the visitors can view our website, they can register them if needed, they can select the boxes according to their preferences, they can easily calculate the tax that they need to pay, they can tract their products until it arrives to the desired destination, they can climb for the insurance when anything happened unexpectedly and so on. This website will definitely be an amazing experience not only to the users even to the government or the management where they also can complete their tasks easily.

1.4 Project Scope

Our proposed solution will be a website which supports both mobile and personal Computer. The initial release will be supporting the following functions.

- User Registration
- User Account Management
- Tax, service charges and other related charges calculation of the cargo system
- Cargo Real-time tracking.
- Placing Cargo sending requests
- Viewing status and overview of Cargo sending requests.
- Implementation of a user-friendly interface

The Unit, Integration and system testing's will be done along with the acceptance testing to ensure the final delivery is ready and matches the original business criteria.

Special Notes:

We are planning to provide customers with the option of selecting cargo packages (Small, medium and large) which suits their needs, and the user needs to enter the weight of their goods which will be used to calculate the service charges and other charges.

A deviation of tax amount which is showed in the cargo sending request page is possible with the current ongoing inflammations in selected geographical locations.

1.5 Objectives

- To make the easy way for customers to climb the insurance in case of any difficulties with proper evidence.
- To automate the tax calculation part.
- To reduce the hassle that needs to be faced by Customers when sending cargo and save their precious time with few clicks.
- Manipulate the services to customers in an easy and secure manner.
- To provide an easy tracking facility to the customers.
- Overall, the website will make the e cargo system very efficient and cost effective.

Chapter 2. Project Description

2.1 Functional / Non-Functional Requirements

2.1.1 Functional requirements

Login and Registration

- The system should allow the user to login /to register to the website
- User can register by providing the correct details especially with correct address, contact number and a valid email.
- System Should Accept the registration if all the details are valid and otherwise system should instruct them to register again.
- System should let the registered user to login if details are correct.
- During the process of login, if there is any mistake then the system should be able to notify the mistake to the user and allow him to do it again.
- System should allow the user to recover his/her password in need.
- After login the user should be able to see the home page and the available pages with the given permission level.
- System should allow the admin to log in to the website using the same portal.
- After login the admin should be redirected to the admin panel.

Admin oversight

- System should let the admin to view accept or reject a request.
- System should show the confirmed requests and pending requests to the admin.
- System should allow the admin to edit request if necessary.
- System should allow the admin to alert the customer in case of emergency.
- System should let the admin to edit the information such as the cargo got accepted, rejected, received or shipped in according to the time.
- The system should let the admin to update the system whether the payment and tax are received or pending.

Service

- The system should allow the customer to select the boxes or the bags based on his need.
- The system should allow the customer to select the category of the items need to be sent.
- System should allow the customer to type the weight of the selected items.
- The system should calculate the price needed to pay for the service.
- The system should calculate the tax of the selected items and display it.
- The system must be able to calculate the total payment base on the price of the service and the amount of tax.
- The system should allow the customer to choose a payment method (Online payment / Cash on delivery)(future developments if required)
- System should allow the user to customize his box based on his needs.
- System should inform the user if the items exceeds than the permitted weight.
- System should allow the user to confirm his order once he agreed to the terms and conditions provided by the system.

Tracking

- System should confirm the customer about the confirmation of received order.
- System should inform the customer if there are any rejected orders.
- System should update the tentative delivery date and time.
- System should inform whether the boxes have been shipped to the destination.
- System should update about the final state of the cargo.

Customer Account

- The system should let the customer to
    - View, edit and delete the orders before conformation.
    - View box details and the ingredients.
    - View and edit personal details.
    - Communicate with the admin panel

- System should let them change the login credentials.
- System should update about the states of the cargo.
- System should allow them to apply for any vacancies if needed via email.
- System should allow the customer to put Feedbacks and complaints at the end through email

Media Center

- System should display the latest news relevant to the services
- System should display the vacancies available.
- System should let the visitors or the customers to apply for the vacancies through mail

Contact us Section

- System should display the location the main service point.
- System should display the contact details of main service point.
- System should redirect the users to the relevant Facebook page of the service point.
- System should allow the customer to type a message and sent to the admin via email
- System should allow the customer to put mails regarding any complaints.

2.1.2 Non-functional Requirements

- The system should be very efficient,
- The system should be maintainable and expandable.
- The system security should be very high and the privacy should be maintained.
- The system should be available anytime (24*7*365)
- Usability
- Reliability

2.2 User Roles and User levels.

User levels.

Admin

- Manage the users.
- Change the states of the services.
- Update the details about the requests.
- Accept the requests or rejects the requests.

Registered Customer

- Customers can login to the system, can view the services, orders, tracking etc.
- Customer can apply for vacancies or contact the main service point.
- Customer can choose to pay online or cash on delivery.

Visitor

- Can access the home page.
- Can access the media center.
- Can contact the main service point.

User Roles

Admin

- Login to the admin panel.
- Have the admin privileges.
- Add, Update and delete the service details.
- View confirmed details.
- View order details.
- View tracking details.
- View payment details.
- View customer details
- Do the customer feedback and complaint review
- Sent notifications to the customers.
- Search and filter the details of the customer.
- Manage own profile.

Registered User

- Log in to the system
- Browse the services.
- Add, Edit, Remove the orders.
- Make payments
- Apply for the vacancies.
- Contact the main service point
- View media center
- Add items to the box
- View tracking details.
- Provide feedbacks and delivery status.
- Create accounts.

Visitors

- Browse the home page
- Register to the system if needed.
- Apply for vacancy
- Contact the Main service point.

Chapter 3. Methodology

Agile methodology

There are so many cargo systems which are running out physically in several parts of the nation. But only a very of them are providing the services in a single click. But according to a study made by our team there is no any proper E-Cargo Management system and its services are available in Sri Lanka. So we are planning to build a web based cargo management system as a service to the citizens of Sri Lanka where they will get countless benefits. There for the requirements can be changed rapidly during the process of development because the services can be varied, customer may need some updates and so on. Moreover we need to provide the system as soon as possible or with in a very short period of time since there is a very big demand for the cargo system and its services. Therefore the methodology that we choose should be able to facilitate with the accommodate changes of the client's requirements.

By considering the above mentioned facts the agile development model will be the perfect model to develop our system. By using this development model accommodating the changes based on clients request will be more easy and quick.

Agile model is an incremental delivery process where each incremental delivered part is developed through an iteration after each time box. Requirements are broken down into multiple standalone modules of the software development life cycle. Agile development is done in phases from Requirements gathering, Design, Construction/ iteration, Testing, Deployment, and Feedback.

In every Systems development Life Cycle, we can find some main phases. And according to Incremental Development, some of them are a bit different. Incremental development is done in steps from design, development, increment testing and verification. The highest priority requirements are included in early increments.

In agile model developers deliver the smaller increments as well as refined the website through iterations. Here the customer feedback and change in requirements are adopted through multiple iterative and incremental deliveries. Iterations and increments continue until the final product is delivered. Due to this multiple delivery model project team can adopt to the changing requirements. Agile methodology prefers for the complex adoptive problems and therefore addressing such complex adoptive problems in the most productive and creative manner.

Our Development Phase Planning

For the Requirements capturing we will be using a mix of closed and open-ended interviewing methods. It is good for getting an overall understanding of what client do and how they might interact with the system. As our client is not well familiar with online cargo management systems, we are going to suggest them many functions to select and guide them. Then we will analyze all the requirements and specify them in increments. And these are the main functions that our system is going to have. User registration, customer account section, add the orders from our services, admin panel, conforming the order and payment method, browsing media center, Tracking the orders, Putting feedback and complaints, Apply for the vacancy, messaging function to contact us.

In the requirement gathering phase we will determine the project scope, and estimate the time and cost to build the project. We will recognize the highest priority requirements for the first increment. And other requirements will be used for the next increments.

In the designing phase, we will work with clients to define requirements. After define the requirements we will create a use case diagram, activity diagram and class diagram for logical design and database design as well as user interface and build the project architecture.

In the development phase, since this is a web-based project we are going to use HTML, CSS, JavaScript, and because this is our first project, we will use PHP language for our backend, also bootstrap as a library and jQuery as support for bootstrap. MySQL will be used as the database language and XAMPP server as our local server. And Photoshop for image editing and other designing when needed.

In the Incremental testing phase, we will have to provide some sample data to the system to check whether all the units of functions are working or not. If there are some bugs they will be fixed before going to the next phase.

In the Verification phase, the customer can evaluate the system at the early stages in the development to see whether it delivers what's required. If not, then only the current increment has to be changed & possibly, the new functionality defined for later increments.

After completing all the increments full system implementation will be done. Finally, the system testing and validation will be performed. And final system testing will be done and it will not be that much hard because every increment system has already been tested. After the testing is completed, the system will be given to the client.

Figure 1: Agile Methodology

Chapter 4. Resources (Hardware/Software)

Hardware

- 4GB RAM or higher
- Hard Disk with 10GB free or higher
- Windows 7 or higher OS
- Dual core or Higher Processor

Software

- XAMPP Server
  - XAMPP is often installed as a software bundle (Apache, MySQL, and PHP). It is often used for web development and internal testing, but may also be used to serve live websites. And interpreters for scripts written in the PHP and Perl programming languages.
- Photoshop
  - Adobe Photoshop is a software application for image editing and photo retouching for use on Windows or MacOS computers. Photoshop offers users the ability to create, enhance, or otherwise edit images, artwork, and illustrations.
- Visual Studio Code
  - Visual Studio Code is a code editor redefined and optimized for building and debugging modern web and cloud applications
- Web browser
  - Any Modern Web browser

Technologies

- HTML5
- CSS4
- Bootstrap 4.1.3
- Java script
- PHP 7.0.10
- Laravel
- MySQL 5.7.14
- jQuery

Chapter 5. Project Plane

	Task	Week															
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1	Topic Identification & Requirement Gathering																
2	Analysis of the requirement & Specification																
3	Proposal Submission																
4	Proposal Presentation																
5	System Design																
6	Design and Development																
7	Testing																
8	Progress Presentation																
9	System Implementation																
10	system Testing or Acceptability Test																
11	Final Report submission & presentation																
12	Documentation																

Chapter 6: REFERENCES

- W3schools (2022). W3schools. Available at: https://www.w3schools.com [Accessed 01 April 2022]
- Sisson, T. (2022) PHP mail() Function Code to Send Emails from a Form. Available at: https://www.inmotionhosting.com/support/website/sending-email-from-site/using-the-php-mail-function-to-send-emails
- https://www.skyradar.com/aviation-security-training/cargo-handling-system-description
- https://www.creative-tim.com/blog/web-design/add-bootstrap-html-guide/
- https://www.gantt.com/creating-gantt-charts
- https://www.airnewzealandcargo.com/international-cargo-process
- https://www.tutorialspoint.com/php/index.htm
- Little, C. (2022, February 18). An Introduction to Web Development Technologies | Tiller Digital. Tiller. https://tillerdigital.com/blog/an-introduction-to-web-development-technologies/ [2 April 2022]
- Timotic, M. (2022, February 20). 9 Web Technologies Every Web Developer Must Know in 2021. TMS. https://tms-outsource.com/blog/posts/web-technologies/ [7 April 2022]