



Sri Lanka Institute of Information Technology

CARGO DELIVERY SYSTEM

Project Proposal
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01. Abstract

“Vision Cargo” and **“Unique Importers”** are two cargo companies which located in Korea and Sri Lanka. **“Vision Cargo”** operates its business in Korea and **“Unique Importers”** was established in Sri Lanka to offer its service to local customers. Because of the necessity arose to establish a cargoes delivery system to deliver the cargoes of the people in Korea to Sri Lanka, the Vision Cargo started its business with the Unique Importers. And the Unique Importers opened a showroom in 2015 at Kadawatha to sell imported goods from Korea as an extra service to its local customers. But they still have no computerized program as it poses several problems such as data incoherence, data unreliability, and so on. The approach is a repetitive and inefficient way and could have resulted in a serious loss of data.

As the clients’ requirement, we proposed the cargo delivery system for both **“Vision Cargo”** and **“Unique Importers”** joint venture companies. Our team chose a set of features to build for this system after discussing it with the client and agreed to create a java-based web application as a response to the existing problems confronting the companies. Our team has agreed to use Java as their programming languages and MongoDB as the database tool and HTML, CSS, and React JS as frontend with the use of Node JS and Express JS as backend web application.

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03. Introduction

“Vision Cargo” and “Unique Importers” are two joint ventures companies which doing cargo delivery between Korea and Sri Lanka. And also Unique Importers opened a showroom in 2015 at Kadawatha to sell imported goods from Korea as an extra service to its local customers.

As these two companies have a lot of inventories; the management of Vision Cargo and Unique importers requires a software system to manipulate their resources in a very proficient manner and connect them to maximize profits for its owners while maintaining co – operate social responsibility.

Using our system all the customers can get many benefits and make their work easier. As well as customers can get more updates about the company. According to this proposal, we will be discussing about the problems and difficulties they face, best solutions that we can give, and all the benefits they can get using this event planning system



Figure 3.1 Vision Cargo and Unique Importers company logo

3.1 Problem Specification

- ❖ They informed us about some of the problems and difficulties that Cargo delivery system has faced during the last few years, and they hope to find some positive answers to those problems through this project.
- They cannot connect with the customers physically because of the covid-19 situation.
- Cargo delivery companies need a strong online presence due to the highly competitive market.
- They do their all the works using bookkeeping methods.
- As well as there is higher time consumption when storing data. Sometimes there were data misplacing and redundant also.
- Need for more secure payment methods.
- Provide the opportunity to talk to a customer when they need to resolve a problem or ask a question about the shipment process.
- Provide customers with the opportunity to give feedbacks about the product and services of the company.

3.2 Solutions

- Customers can connect easily with service through the website.
- Maintain database to store data and keep up to date.
- Manage the finance with showing budget forecast, update daily income and outcomes and salary calculation.
- Real-time payment status updates and notifications and provide confirmation whether the payment has been processed or not.
- Allow the customers to reach our customer service via multiple channels including email, website chat, phone, social, text message and allocate resources accordingly.
- Using this system, they can maintain their databases to store and update data.

- Even in difficult situations, all the customers can be able to connect with the company every time very easily.
- Company can get ideas from customers using the feedback session.

3.3 Benefits

- Increase revenue of the company and improve operational efficiencies.
- Improve warehouse efficiency by automating the data entry process and eliminate errors which caused by manual entry.
- Ability of connecting both Sri Lankan company and Korean company.
- Safeguard the performance of cargo handling system and upgrades and modernization.
- Reduce cost of the users – Customers can register to the web application through the self - registration method. So, customers can save the travelling cost.
- Easy to access the system from anywhere through any device.
- All the users can use this system very easily.

04. System Overview

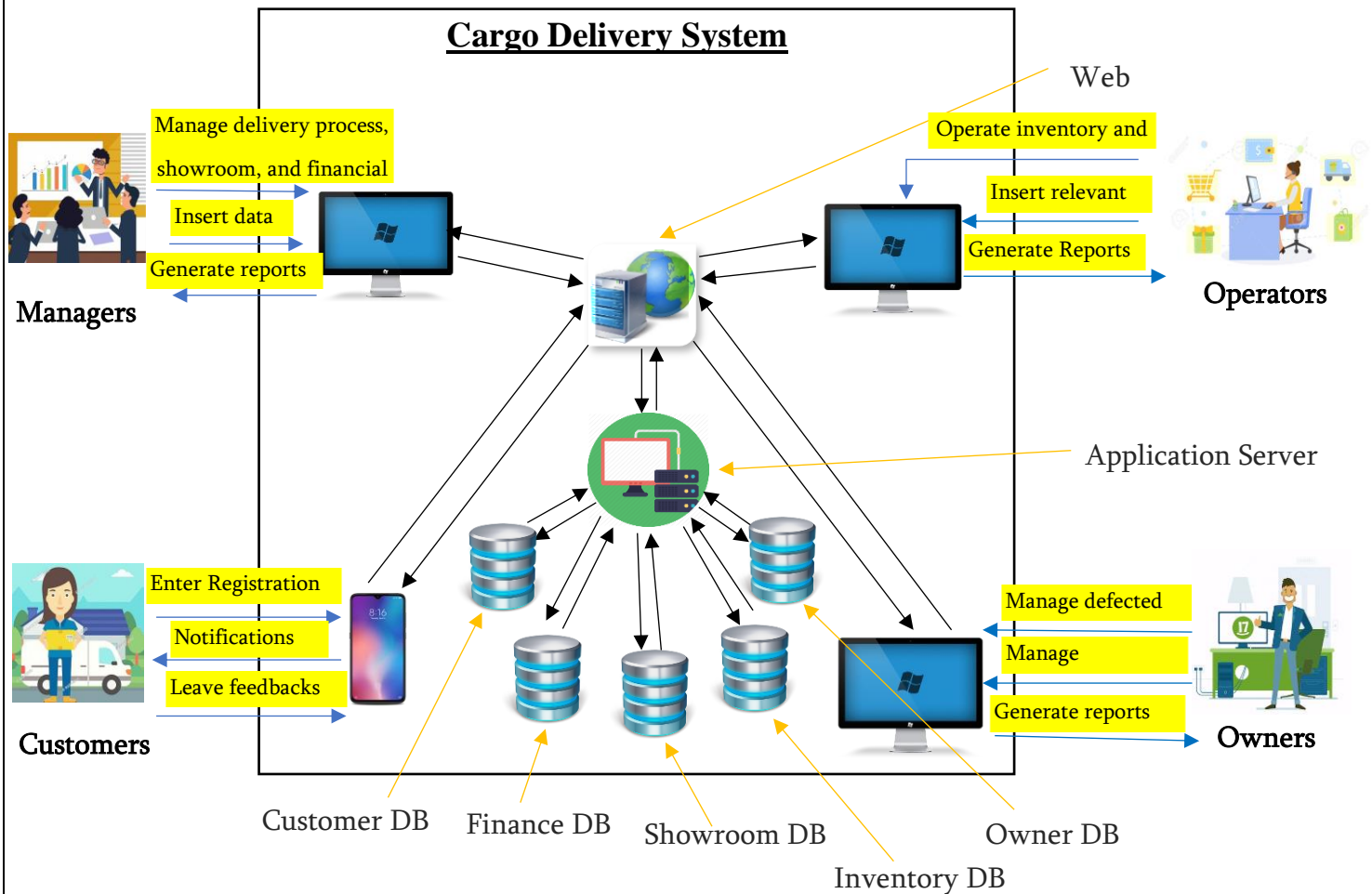


Figure 4.1 System overview of Cargo delivery system

This diagram demonstrates an overview of the Cargo Delivery System for Vision Cargo and Unique Importers companies. As shown in the above figure there are 3 Managers, 2 Operators, Customers and 2 Owners who interacts with the system.

The 3 Managers are managing delivery process, showrooms and the financial aspects of the company. They do all the CRUD operations and gets involve with the system. And they also generate reports. The 2 operators, operates the inventory and the system. They also interact with the system using relevant CRUD

operations and generate reports according to their tasks. Customers of the company can get registered to the system by providing relevant details and they will receive notifications about their cargos and also, they can give a feedback as well. The 2 owners of the system are to handle companies in Korea and Sri Lanka. They manage the defected products, documents and the employees and also generate final reports.

Our team has planned to incorporate 5 databases in our system. The 5 databases are as follow,

- 1) Customer DB
- 2) Finance DB
- 3) Showroom DB
- 4) Inventory DB
- 5) Owner DB

05. Functions

5.1 Customer Management

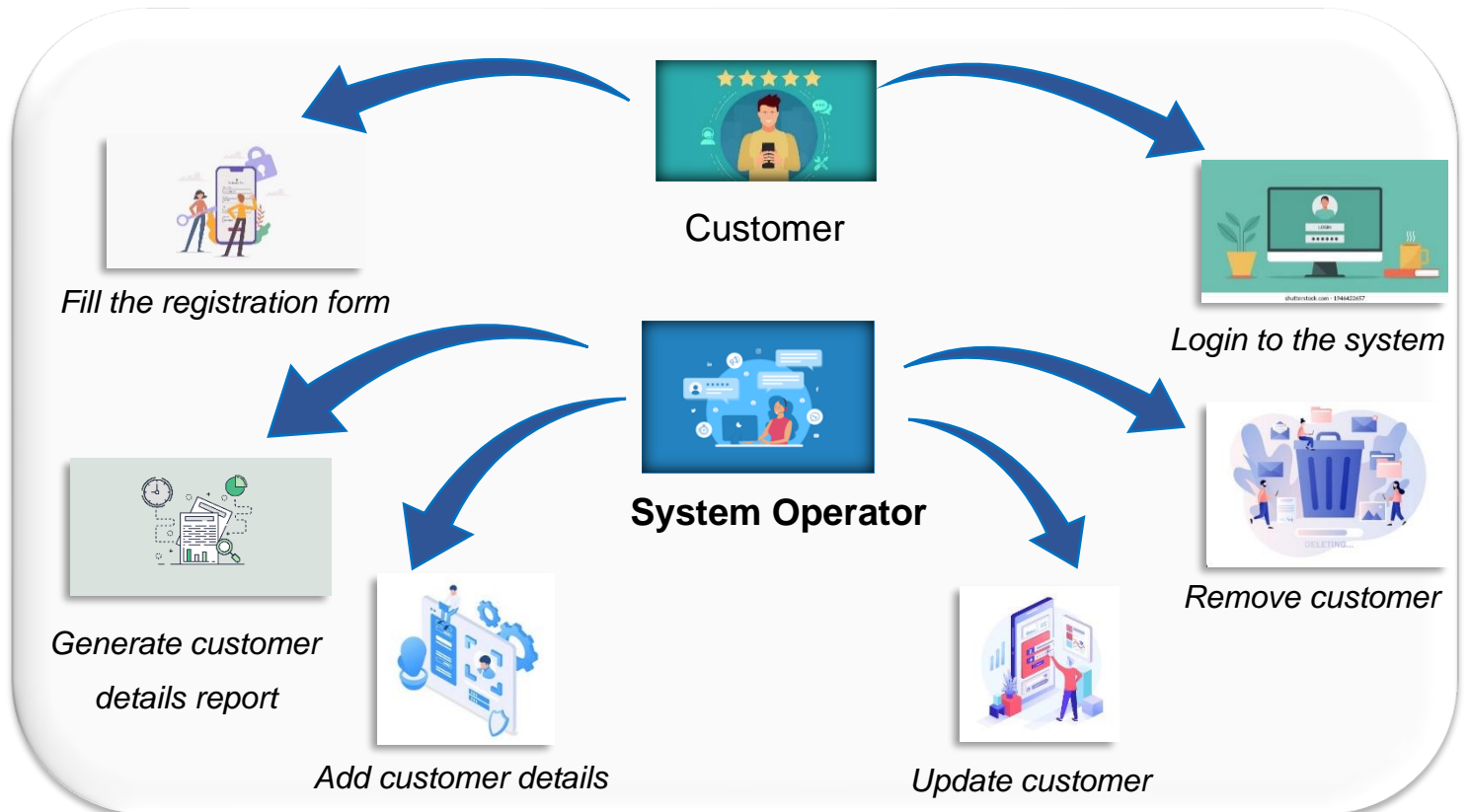


Figure 5.1 An Overview of customer management function

In the customer management function main tasks are customer registration, detail maintaining & keep updating.

Customers in Korea and Sri Lanka who wish to access the service from the “Vision cargo” and “Unique Importers”, they can self-register through the registration form that provided by the relevant web application and register to the system. There are separate registration forms for Korean customers and Sri Lankan customers. For the registration there are two separate forms including customer name, address, email, NIC No and phone number.

All registered customer details will handle by the system operator. The system operator will create a profile for each registered customer using their details. Registered customers and system operator can view, update and delete their profile details. After registration customer must enter their valid username & password while filling the sign in form, otherwise they will not be allowed to login to the system.

If Korean customers want to deliver cargos through the company, they have to fill another form by including relevant details as receivers name, receivers phone number, email address of the receiver, and receivers' address. All details of customers and receivers are stored in customer database. There are customer table & receiver table in the customer database. Customer table have Customer Id, Customer Name, Email, Phone number, NIC, and Address. Receiver table have Receiver Id, Receiver email, Phone number, NIC and Receiver address. The system generate reports automatically includes information about customer and receiver details.

5.2 Store Management

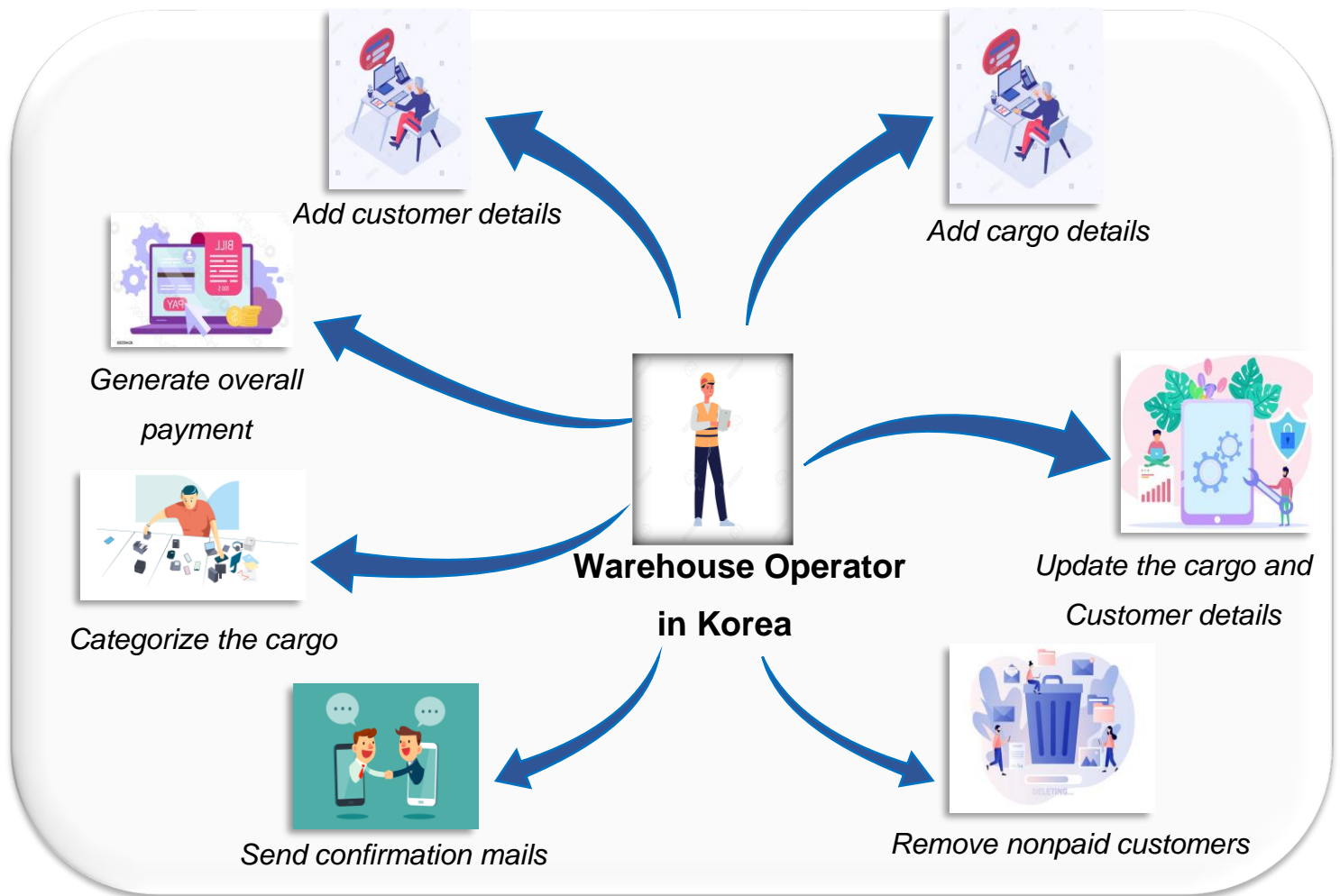


Figure 5.2 An Overview of store management function

Store management is a responsibility of the warehouse operator in Korea. After the cargo received to the warehouse It is categorized. They add to the system according to customers and cargo details. The calculation of the shipping cost and all other expenses are done under store management.

Korean warehouse operator can add new customer and cargo details to the system like serial number, sender's name, receiver's name and address, cargo type, shipping cost etc. also can edit and update of the customer and cargo

details. It is also possible to delete the customer who are not paid during the given time period. The cargoes are shipped after the customer make the payment. In addition to the above operations, the Korean warehouse operator generate a report to provide Korean customers with product information and related overall price (shipping cost, delivery charges) details.

The database for store management is inventory database. It will include the cargo details table and the payment table which consists of serial number, sender's name, payment details, date & time, receiver's name and address etc. Therefore, the company owners and will be able to have a better product visibility.

5.3 Distribution Management

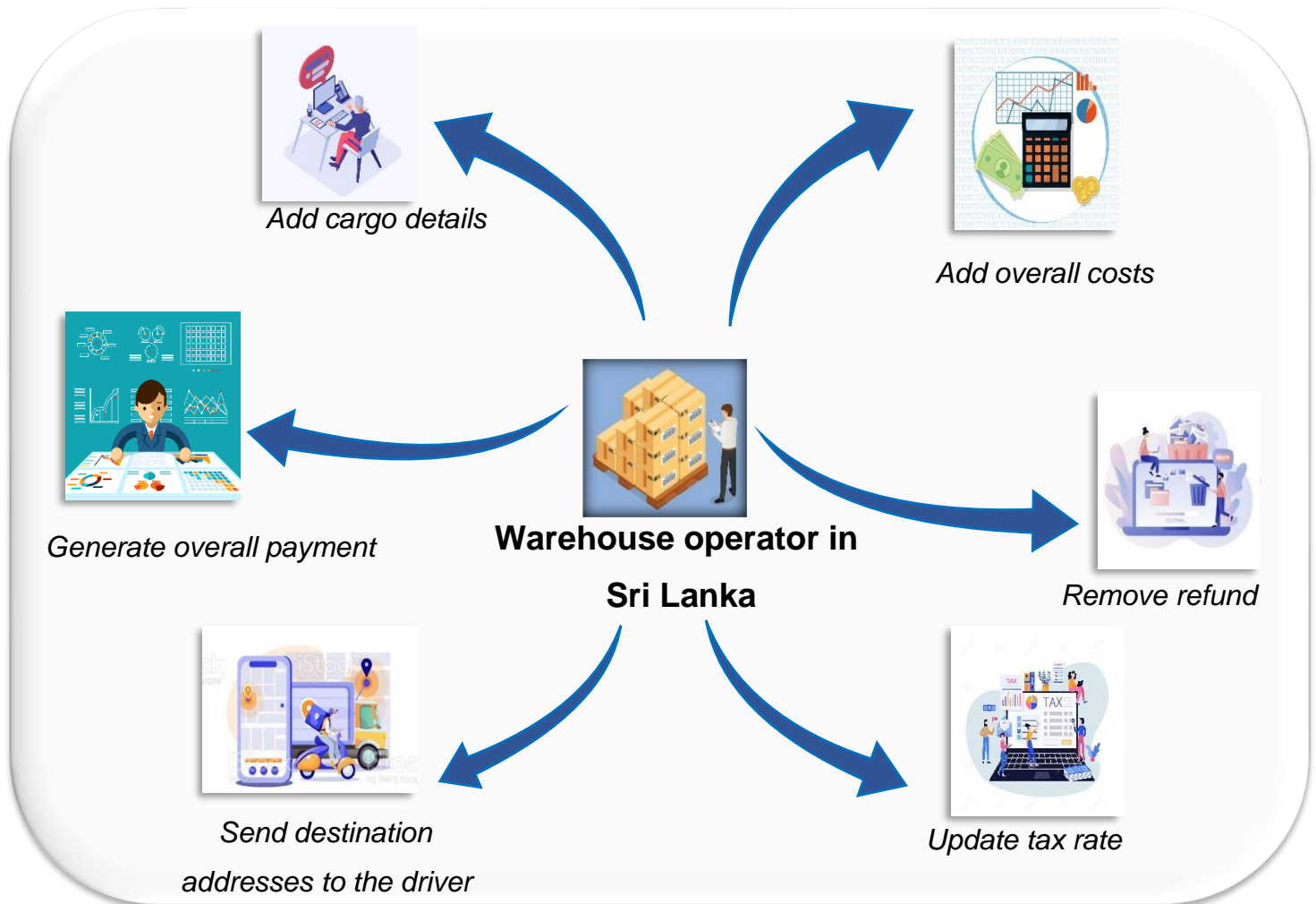


Figure 5.3 An Overview of distribution management function

Distribution management is a responsibility of the warehouse operator in Sri Lanka. Once the cargoes reached to Sri Lanka cargoes should clear from the custom and store them in the warehouse. The calculation of the clearing costs, taxes and all other expenses are done under distribution management.

Warehouse operator can add new cargo details to the system like serial number, weight, sender's name, receiver's name, receiver's direction, etc. Also, can edit

and update the details of the taxes as it is changing time to time. If there are any refunds in the cargoes; those cargoes can be deleted by the warehouse operator from the system. Apart from the above operations warehouse operator in Sri Lanka generates the report including payments that the receiver in Sri Lanka must do before handover the products.

The responsible database for distribution management is Inventory database. It will include the cargo dispatch table and the cargo warehousing table which consists of serial number, weight, date & time, receiver's name, etc. Therefore, the company owners will be able to have a better product visibility.

5.4 Delivery Management

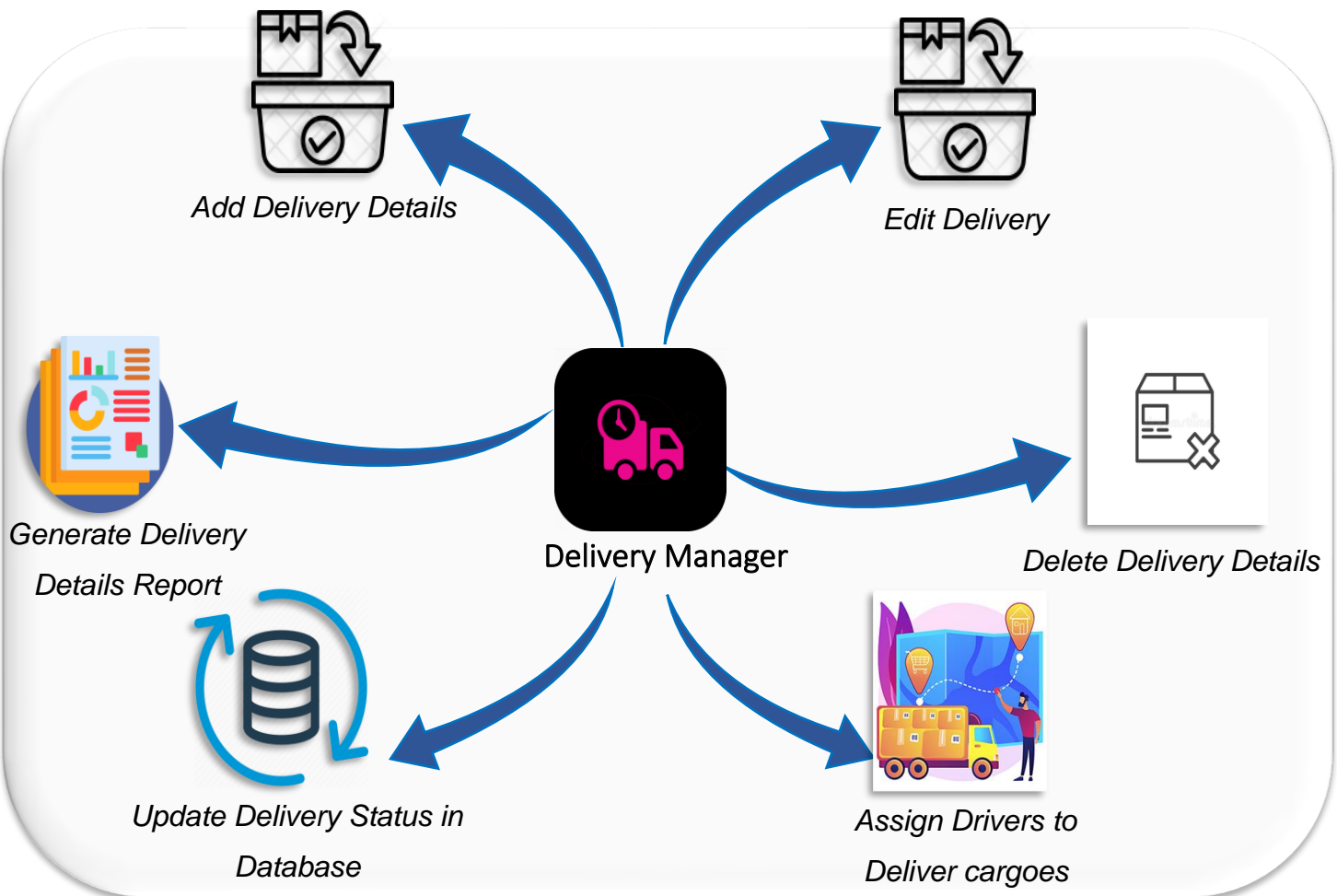


Figure 5.4 An Overview of delivery management function

Delivery management is done by the delivery manager in Sri Lanka. After the cargoes received to the Sri Lankan warehouse, the delivery manager will be informed by the warehouse operator of the Sri Lankan warehouse. And the delivering cargoes to the respective places is done Under the supervision of the delivery manager.

Delivery manager can add new drivers details to system like driver's name, contact number, NIC number, address, employee ID. Also, can update the drivers details if they are wrong or changed.

The database for delivery management is inventory database. It will include the drivers details table and the delivery details table. In delivery details table It will include the sender's name, receiver's name, receiver's address, receiver's contact number, driver name that assigned to deliver the cargoes and the employee ID of the driver. At last, the delivery status Delivery status can be updated according to the information received and can be deleted information if there any wrong details.

5.5 User Management

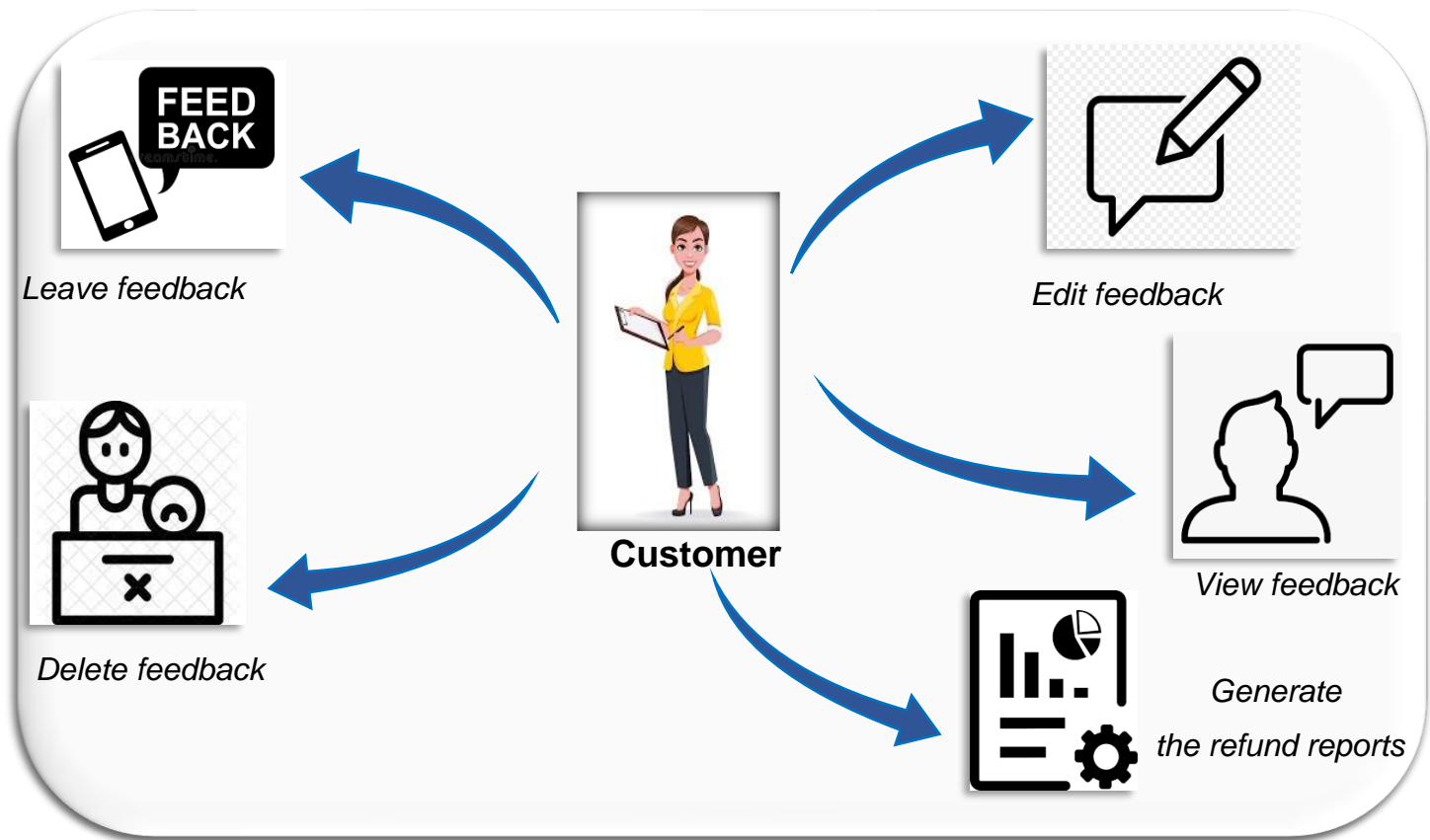


Figure 5.5 An Overview of user management function

According to the User Management system when the customer received the relevant cargo, customer should be able to give feedback about the service and should be able to make refunds through the system.

Feedback is one of the important parts of any business process. Because it will be helpful to improve the service or product of the business which will support to boost the success of the business. By filling a form customer can give a feedback about the service or cargo as well as can remove the feedback if they want. If they want to view their feedback, they can search it by using their customerID. And also, can edit their feedback by asking for a feedback revision.

Therefore, customer can make refunds through the system. So that they can return cargo and take money back if they dissatisfied with cargo services they received. To make a refund customer has to fill a refund form and the refund report will be generated manually.

Customer Database is the main database for this User Management function and in here I hope to create two different tables as feedback and refund under the customer database. This function directly connects with the Customer Management function because customers have to give their feedback by using their account which they registered under the Customer Management function.

5.6 Shop Management



Figure 5.6 An Overview of shop management function

“Unique Importers” operates a showroom as their side business that sells imported goods from Korea for the Sri Lankan buyers. The local customers can buy the goods through online or visit the shop’s showroom.

According to shop management the showroom manager can launch new products to the system and manage stock levels. When launching new products, the showroom manager can add a new product category. If the showroom manager

intends to make any changes, he/she can update or delete product details from the system. Therefore, the showroom manager can generate a report about ordering details as well as stock level details.

“Showroom DB” is the main database for the shop management. It will include the product and order tables.

5.7 Finance Management

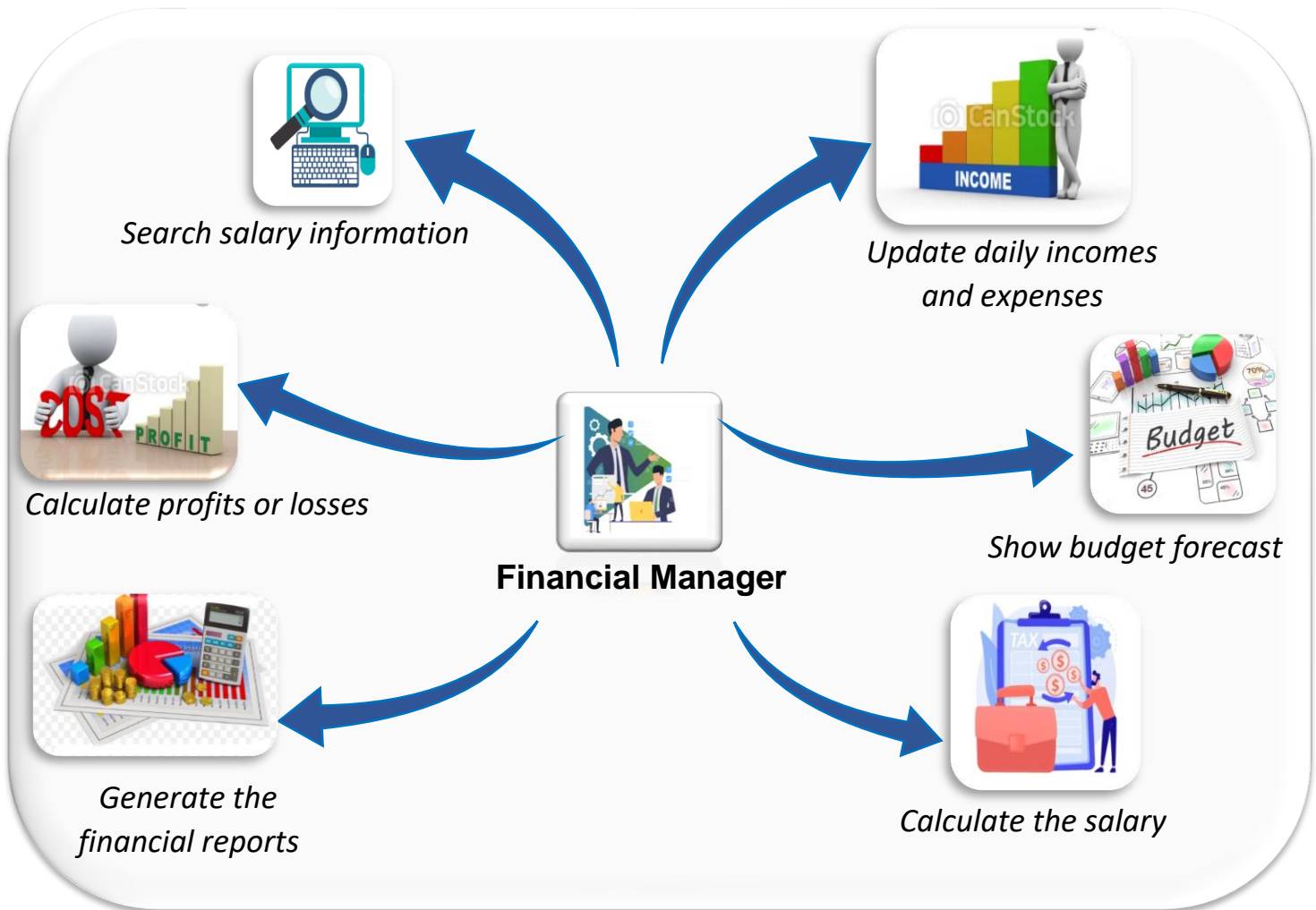


Figure 5.7 An Overview of Finance management function

Finance management function is the function which manages all the financial aspects of both Vision Cargo and Unique Importers companies. As shown in the figure system allows Finance Manager to insert, update and delete incomes and expenses of the company to tables which are called INCOMES and EXPENSES tables which are in the Finance database. With the help of digital cash ledger book Finance Manager can calculate a profit or a loss in the business. Finance

Manager is also able to show the budget plan and the budget forecast graphically to the team.

As another feature, Finance Manger is able to search salary information of each employee by using employee ID and calculate the salary by using basic salary, attendance list and the OT rates of each employee.

Finance Database the main database for this Finance Management function and it directly connects with showroom management, inventory management and owner management functions which are using Showroom Database, Inventory Database and Owner Database respectfully.

5.8 Owner Management

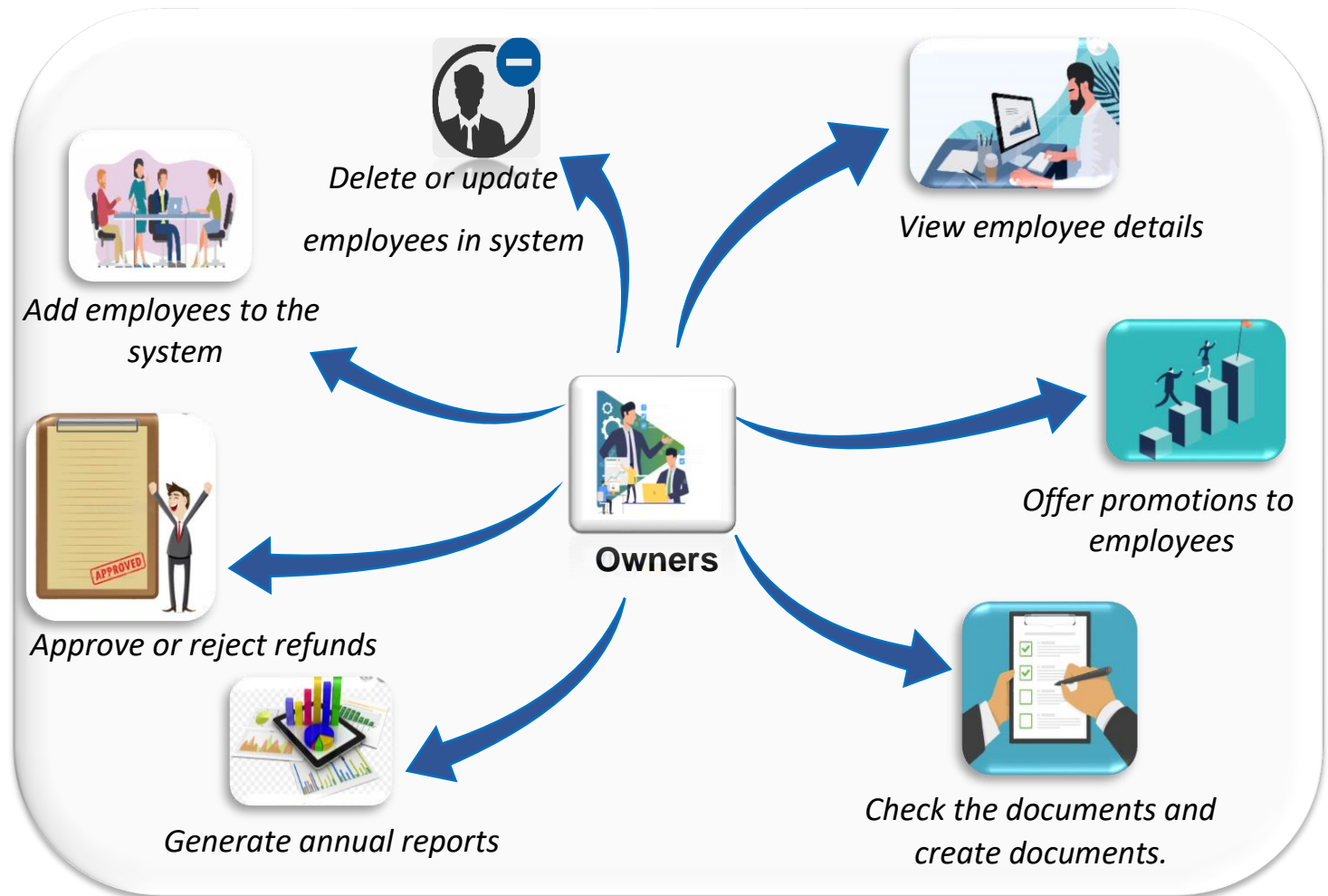


Figure 5.8 An Overview of Owner management function

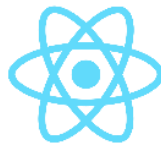
Owner Management is one of the useful functions in Cargo Delivery System. According to the owner management, there are Korea owner and Sri Lanka owner. Both Korea owner and Sri Lanka owner can handle this system. Not only that there is an Owner Database. Both owners can see all other databases also. Owners can develop the system any time. If there is a defected product, check all the documents and create new documents also. Then can make approval and approve or reject refunds. In addition to that owner can add employee details and update the employee details in the system. In addition to that owner can view

employee details also. Then owner can check employees' details and work experiences. After that owner can decide to offer promotions to employees. Owner can see other databases and generate final progress report annually.

06. Tools and technologies

❖ React JS

- ✓ React JS is a free and open-source front-end JavaScript library.
- ✓ It is a platform can be used as a base in the development of mobile applications.
- ✓ It's fast, scalable, flexible, powerful, and has a robust developer community that's rapidly growing.
- ✓ Benefits
 - It's easy to learn.
 - It helps to build rich user interfaces.
 - It allows writing custom components.
 - It uplifts developers' productivity.



❖ Node JS

- ✓ Node JS is free and open-source server environment.
- ✓ It runs on different platforms like Windows, Linux, Mac OS X, UNIX, etc.
- ✓ It uses JavaScript on the server.
- ✓ Benefits
 - Keeping things simple.
 - Faster time-to-market.
 - Scalability.



❖ Express JS

- ✓ Express JS is a free open-source software, and it is a back-end web application framework for Node JS.
- ✓ It is written in JavaScript.
- ✓ This is used for designing and building web applications.
- ✓ Benefits
 - Easy to configure and customize.
 - Allows you to define an error handling middleware.
 - Easy to serve static files and resources of your application.
 - Allows you to create REST API server.



❖ Mongo DB

- ✓ Mongo DB is an open-source document-oriented database program.
- ✓ It classified as a NoSQL database program.
- ✓ This is written in C++.
- ✓ Mongo DB is developed by Mongo DB Inc.



07. Gantt Chart

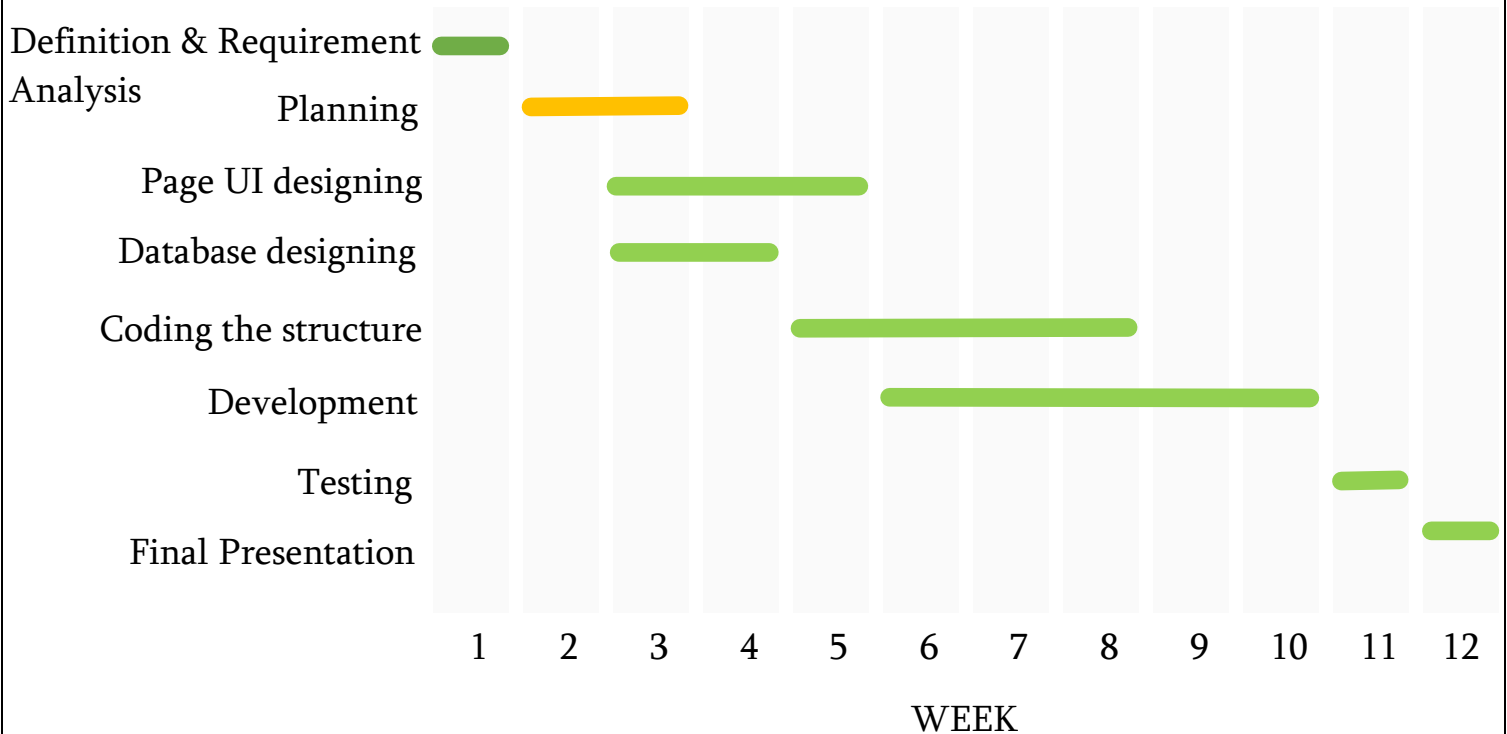


Figure 7.1 Gantt chart of Cargo delivery System

The above Gantt chart shows our time allocation for this project. We plan to spend about 12 weeks for our work. According to this chart the blue lines represent the steps which we have completed. And the yellow lines represent the steps we have started. And the steps we should start soon is represented by the green lines. The first step which is definition and requirement analysis we completed successfully. Now we have already started our second step, we wish to complete project by 12th week.

08. Work Distribution

IT Number	Name with initials	Functions
IT20135034	Samarawickrama T.J.P	Customer management
IT20135898	Arachchi A.G.S.C	Store management
IT20252236	Ekanayake J.S.M.R.N.W.I.U	Distribution management
IT20133986	Fernando R.R.M	Delivery Management
IT20135270	Kollure K.A.D.D	User management
IT20138486	Rathnayake R.M.T.D	Shop management
IT20202736	Withanage W.D.U.I	Finance management
IT20905040	De Silva W.P.S	Owner management

Figure 8.1 Work Distribution among team members