Software Requirements Specification (SRS) Document

Team 14 : Hire Truck
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Brief problem statement

Hire Truck: This Project aims to create an interface for goods transportation services enhancing the lives of both the customers and the transportation services as well. The main goal is to ensure the maximal utilization of transportation vehicles, especially during their return journey.

Users profile

The users of the project are:-

1). Customers: These are the ones who request transportation of goods. It is assumed that they are versed enough to use this application.

2). Freight Owners: These are the ones who take in the request for the transportation of goods. Socially, it is assumed that they have minimal experience with computers.

3). Port Owners (Primary Users): These are the primary users of this, as they aim to minimize their expenses during the transportation of goods. Minimization of cost is done as the vehicles are not going to go empty on their return trip, hence the expense is calculated one way. It is assumed that this group has someone in their team who is well-versed with the software system.

As an Application user:

1. I want to be able to login and register to the application in an easy and accessible way.
2. After login, I want to see my dashboard where I can generate a new ticker for goods transfer if I am a freight owner and see my existing tickets which are not closed. Similarly, if I am a truck owner, I want to list my truck to notify it is available for hire.I also want to ensure proper notifications are given to the opposite party interested for my current action.
3. After logging in I want to see all possible options listed (available for hiring i.e. for the freight owner to send quotations) and as a truck owner I want to receive quotes.
4. After my truck is matched with a freight or vice-versa, I want to be notified about the match and also want to know the details of the match
5. I want to be able to see how many trucks I have and if they are available for hire or not in an efficient manner.

Project Modules

Module-1: Frontend Module:

Submodule 1: Authentication Module:

- The Authentication Module is responsible for handling user authentication and registration. (Release: R1)
- It includes functions to verify user credentials, register new users, and handle user sessions. (Release: R1)
- The module also communicates with the Database Module to retrieve and update user information. (Release: R1)
- A backend API call to authenticate the user into the system and display the appropriate dashboard depending on the user type. (Release: R1)

Submodule 2: Freight Owner Dashboard Module:

- The Freight Owner Dashboard Module provides a dashboard for freight owners after successful authentication. (Release: R1)
- It includes functions to display currently listed tickets raised, and an option to generate a new ticket request for goods delivery by truck. (Release: R1)
- When a new ticket request is generated, the module sends a notification to the Truck Owner Dashboard Module, indicating the availability of a new job. (Release: R2)

Submodule 3: Truck Owner Dashboard Module:

- The Truck Owner Dashboard Module provides a dashboard for truck owners after successful authentication. (Release: R1)
- It includes functions to display currently listed trucks, and an option to generate a new truck which would be available for hire. (Release: R1)
- When a new truck is generated, the module sends a notification to the Freight Owner Dashboard Module, indicating the availability of a new truck for hire. (Release: R2)

Submodule 4: Notification Module:

- The Notification Module is responsible for handling notifications between the Freight Owner Dashboard Module and the Truck Owner Dashboard Module. (Release: R2)
- It receives notifications from the Freight Owner Dashboard Module when a new ticket request is generated, and forwards them to the Truck Owner Dashboard Module. (Release: R2)
- It also receives notifications from the Truck Owner Dashboard Module when a new truck is generated, and forwards them to the Freight Owner Dashboard Module. (Release: R2)

Submodule 5: Matching Algorithm:

- It is necessary to route/assign the trucks to that freight owner which ensures minimum cost and maximizes the output. (Release: R2)
- Matching Algorithm based on location and number of freight owners on that path to ensure optimality of assignment of trucks. (Release: R2)

Module-2: Backend Module:

Submodule 1: Database Module:

- The Database Module is responsible for storing and retrieving all data related to the Hire Truck Project.
- It includes functions to store and retrieve user information, truck information, and job information.
- The other modules depend on the Database Module to store and retrieve information.
- Maintaining secure data and proper middleware implementation to ensure that no runaway application/user can access the private data of any truck owner or any freight owner. It is essential for the user to go through the proper authentication route so that the JWT token is set else it won't be set and the application would not run properly. (Release R1).

- Backend API calls for extracting existing tickets, listed trucks and user data. (Release R1)
- Protected Routes (Release R1)

Feature requirements (described using use cases)

No.	User Case Name	Description	Release
1.	Building Login Page	The page where the user will enter his/her login details to log on to their account.	R1
2.	Building Signup page	The page wherein the user enters all the details to create an account.	R1
3.	Maintaining User data	Setting up a database and integration of the backend to store user data.	R1
4.	Home Page	The page contains links to logging in/signing up as freight owner, truck owner, about use link, etc.	R1
5.	Freight Owner Dashboard	Includes functions to display currently listed tickets, and an option to generate a new ticket request for goods delivery by truck.	R1
6.	Truck Owner Dashboard	Includes functions to display currently listed trucks, and an option to generate a new truck available for hire.	R1
7.	Matching Algorithm Page	Assign a truck to a freight owner optimally such that minimum cost is incurred along with maximized output.	Yet to be Released

8.	Notifications	As soon as a ticket is generated, a notification via WhatsApp/Mail will be sent to truck owners and similarly as soon as a truck is listed, a notification via the same means will be sent to freight owners.	Yet to be Released
9.	End to End Authentication and Protected Routes	Complete authentication and protection of routes has been implemented so runaway applications/users can not access the data. Any user will have to go through the formal process of authentication to see data (JWT Authentication). Also middleware has been implemented for the same.	R1 (Improvements to be released.)

Use Case Diagram