DRIVECARE CANCER SUPPORT TRANSPORT ORGANISER

Functional Specification

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Introduction

The purpose of this functional specification document is to outline the main functionalities of DriveCare.

It will include a detailed outline of the purpose of the application and the application's target market. The structure of the entire application will be supplied in the form of a context diagram. A Use Case diagram will define the interactions between users and the application, with brief and detailed use cases to provide a comprehensive description of the tasks that these users can perform through the application. Non-functional requirements of the application will be provided in the form of FURPS+ metrics (Functionality, Usability, Reliability, Performance, Supportability+).

Definition of Application

DriveCare aims to eliminate the need for the current paper-based client transportation system used within the local cancer supports of Ireland. It will provide the transport coordinators, volunteer drivers, and clients of the supports with an application that will allow them to complete all their tasks in one location. An administration web application will be created for utilisation by the transport coordinators, with an Android mobile application for use by the drivers, clients, and transport coordinators.

Core Functionalities

- Maintain a calendar of all planned trips to be viewable by clients, drivers, and transport coordinators.
- Transport coordinators can maintain information about all clients and drivers in a way that is GDPR compliant.
- Send and receive text messages between clients, drivers, and transport coordinators.
- Plan routes for drivers including pickup locations of clients and destinations.
- Provide an online application form for new volunteer drivers.
- Provide an online driver's log to record details of daily trips.

Non-Core Functionalities

- Automatically notify transport coordinators when a driver's licence is soon to expire.
- Tracking of driver's route for transport coordinators.
- Monthly report of car usage.
- Report of client's usage of support's transport service.
- Allow client to leave review of transport service.

Target Market

This application is aimed at local cancer supports across all of Ireland.

The main users of this application will be:

- Transport Coordinators
- Volunteer Drivers
- Clients

Transport coordinators will have the ability to schedule trips for clients, create new driver and client accounts, view a calendar of all upcoming trips, generate reports about trips, drivers, clients, and cars.

Volunteer drivers will be able to view their weekly schedule, record a driver's log of trip information, apply to become a new driver and view their trip's routes.

Clients can send transport requests, view their weekly schedule, and provide feedback about their experience with the service.

Clients will have the ability to send text messages to and receive text messages from drivers and transport coordinators, allowing clients without the application to still engage with the cancer support.

Context Diagram

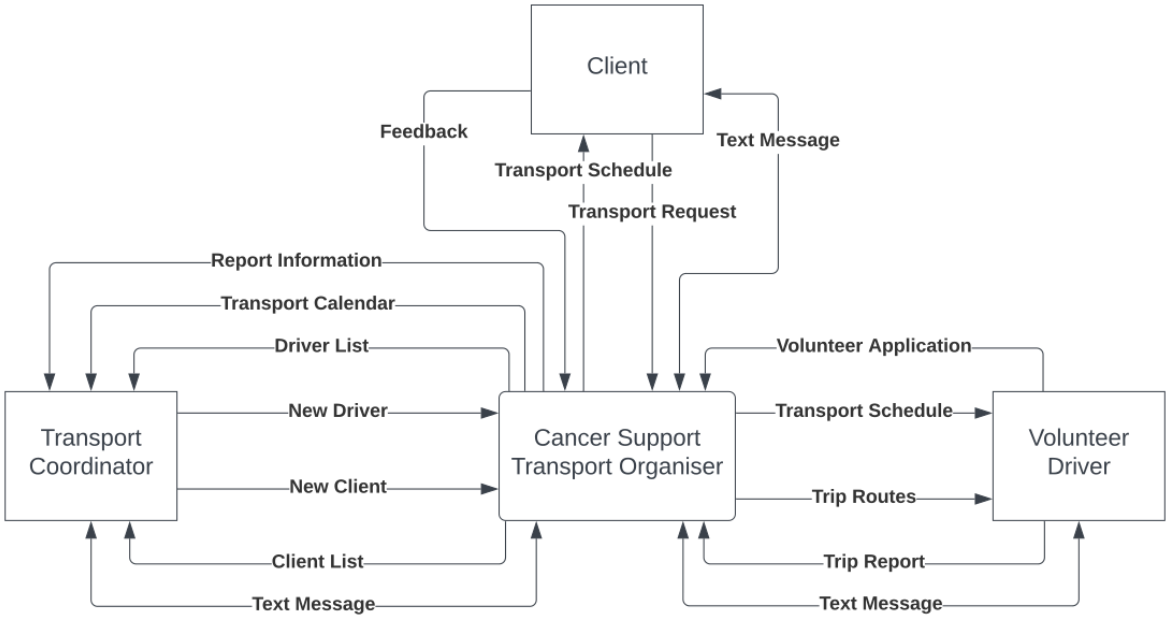

Figure 1. Context Diagram

Use Case Diagram

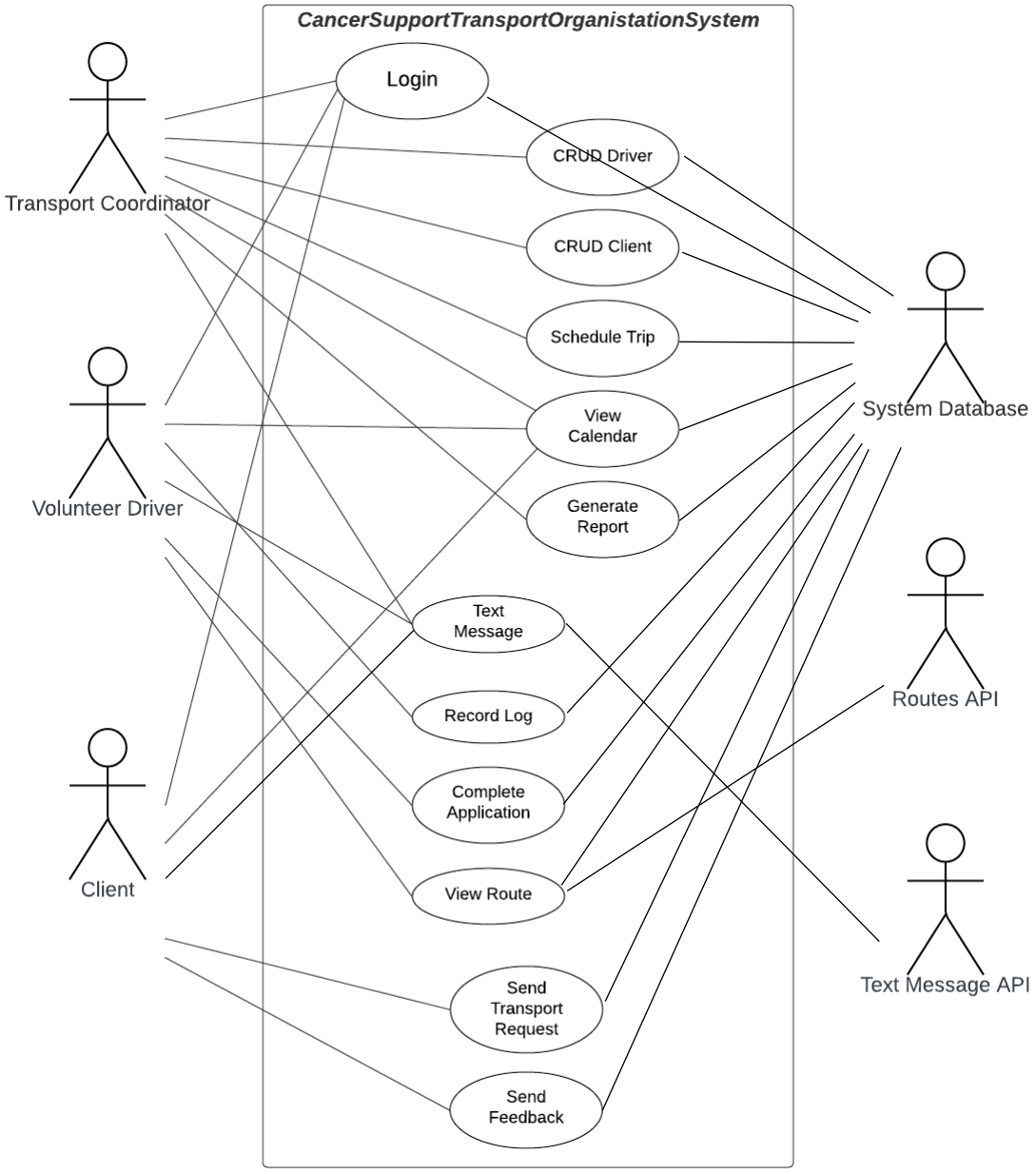

Figure 2. Use Case Diagram

Brief Use Cases

Use Case Name: Login
Actors: Transport Coordinator, Volunteer Driver, Client, System Database
Description: This use case begins when a transport coordinator, volunteer driver or client wants to log in to the application. The user enters their credentials and once confirmed against their credentials stored in the database, and the use case end when they are logged in.

Use Case Name: CRUD Driver
Actors: Transport Coordinator, System Database
Description: This use case begins when a transport coordinator wants to create a new driver account. The user chooses to create a new driver and enters the required details about a new driver. The use case ends when the user confirms the new driver, and the new driver is created in the database.

Use Case Name: CRUD Client
Actors: Transport Coordinator, System Database
Description: This use case begins when a transport coordinator wants to create a new client account. The user chooses to create a new client and enters the required details about a new client. The use case ends when the user confirms the new client, and the new client is created in the database.

Use Case Name: Schedule Trip
Actors: Transport Coordinator, System Database
Description: This use case begins when a transport coordinator wants to schedule a trip after a client has confirmed their transport requirements. The user chooses to schedule a new trip. They select the client they wish to schedule the trip for, enter the details of the trip and assign a driver. The use case ends when the user confirms the trip, and the new trip is created in the database and visible on the schedule calendar.

Use Case Name: Generate Report
Actors: Transport Coordinator, System Database
Description: This use case begins when a transport coordinator chooses to generate a report. Reports can be generated on completed trips, clients, drivers, and cars. The use case ends when the report is displayed to the transport coordinator.

Use Case Name: View Calendar
Actors: Transport Coordinator, Volunteer Driver, Client, System Database
Description: This use case begins when a transport coordinator, volunteer driver or client wants to view the calendar containing scheduled trips relevant to them. The user chooses to view the calendar and the trips associated with them are displayed. The transport coordinator will be able to see all scheduled trips. The use case ends when the calendar is displayed.

Use Case Name: Text Message (Send)
Actors: Transport Coordinator, Volunteer Driver, Client, Text Message API (Application Programming Interface), System Database
Description: This use case begins when a transport coordinator, volunteer driver or client wants to send a text message. The user chooses to send a text message. After this is chosen, they select who they wish to text and write their message. They then send the message, which is completed through the text messaging API. The use case ends when the text message is sent.

Use Case Name: Text Message (Receive)
Actors: Transport Coordinator, Volunteer Driver, Client, Text Message API, System Database
Description: This use case begins when a transport coordinator, volunteer driver or client wants to view received text messages. The user chooses to view text messages. The use case ends when all received text messages are displayed to the user.

Use Case Name: Record Log
Actors: Volunteer Driver, System Database
Description: This use case begins when a volunteer driver wants to record details of a trip after completion. The driver chooses to record a trip log. They then enter the details about the trip. The use case ends when the driver submits the completed log, which is stored in the database.

Use Case Name: Complete Application
Actors: Volunteer Driver, System Database
Description: This use case begins when a person wants to apply for the position of a volunteer driver. The person fills in the supplied online form to apply for the position. The use case ends when the completed form is submitted and stored in the database.

Use Case Name: View Route
Actors: Volunteer Driver, Route API, System Database
Description: This use case begins when a volunteer driver wants to view the route of the trip that they must make. The driver chooses to view the route of a trip. The details of the trip are sent to the Route API which calculates the most efficient route for the trip. The use case ends when the route is displayed to the driver.

Use Case Name: Send Transport Request
Actors: Client, System Database
Description: This use case begins when a client wants to send a transport request. The client chooses to request transport. They enter the details of the transport they require. The use case ends when they submit the transport request, which is stored in the database and updates the calendar.

Use Case Name: Send Feedback
Actors: Client, System Database
Description: This use case begins when a client has finished their treatment and wants to send feedback about their experience with the cancer support. They choose to send feedback. They enter their feedback into the displayed online feedback form. The use case ends when they submit the feedback form, which is stored in the database.

FURPS+ Metrics

This section will detail the non-functional required of the Cancer Support Transport Organiser application.

Functionality

The main functionality of the application has been discussed at lengths in the previous sections of this document.

Usability

This section discusses the ease of use and responsiveness of the user interface (UI) of this application. Each different type of user should be easily able to traverse the UI relevant to them, only displaying what is necessary to each user. The purpose of each section of the UI should be immediately obvious to any user.

Reliability

This section details the ability of the application to recover from errors and the acceptable application downtime. All information within the application should be regularly backed up to the database. Forms should be able to be completed without an available internet connection and submitted once connection is restored.

Performance

This section describes the overall performance of the application, how quickly a user's requests are fulfilled and acceptable loading speeds of the application. The performance will be refined upon design of the application, however it will aim for a statistic of in 95% of cases, a user should be able to log in to their account in 30 seconds or less and in 95% of cases, any selected options within the application should take no more than 1 minute to completely display.

Supportability

This section discusses the extensibility, testability, and platform compatibility of the application. The application will be compatible with Android (version 6.0+) and the web application will be compatible with all browsers.

Security and GDPR

This section describes the security of the application. Only users with a valid login will be able to access the application, and each user will only be given access to relevant information pertaining to their user status, with only transport coordinators having access to the entire application.

The General Data Protection Regulation (GDPR) was brought into effect on 25th May 2018. It aims to establish the "*protection of natural persons with regard to the processing of personal data and rules relating to the free movement of personal data".* (Proton Technologies AG, 2023). As this is a health-related application, all information held relating to clients and volunteer drives is confidential, and as such must be stored securely and correctly, with only necessary data being stored. The application will be created with a security-by-design approach to ensure proper handling of all incoming and stored data, with stored data being encrypted and only stored for as long as the data is deemed necessary. Consent must be obtained from all users as to how their data can be utilised by the application.

Conclusion

DriveCare aims to provide an online transport application for clients of various cancer supports around Ireland, acting as a replacement for the current paper-based systems which many of them have in place. It will allow transport coordinators within these supports to easier control the transport service they provide to their clients, providing a single location for clients, volunteer drivers and the transport coordinator to access transport information.

References

Proton Technologies AG, 2023. *Article 1 - GDPR - Subject-matter and Objectives.* [Online] Available at: https://gdpr.eu/article-1-subject-matter-and-objectives-overview/