The Transporters

Mobile app for delivery routes and processes optimization

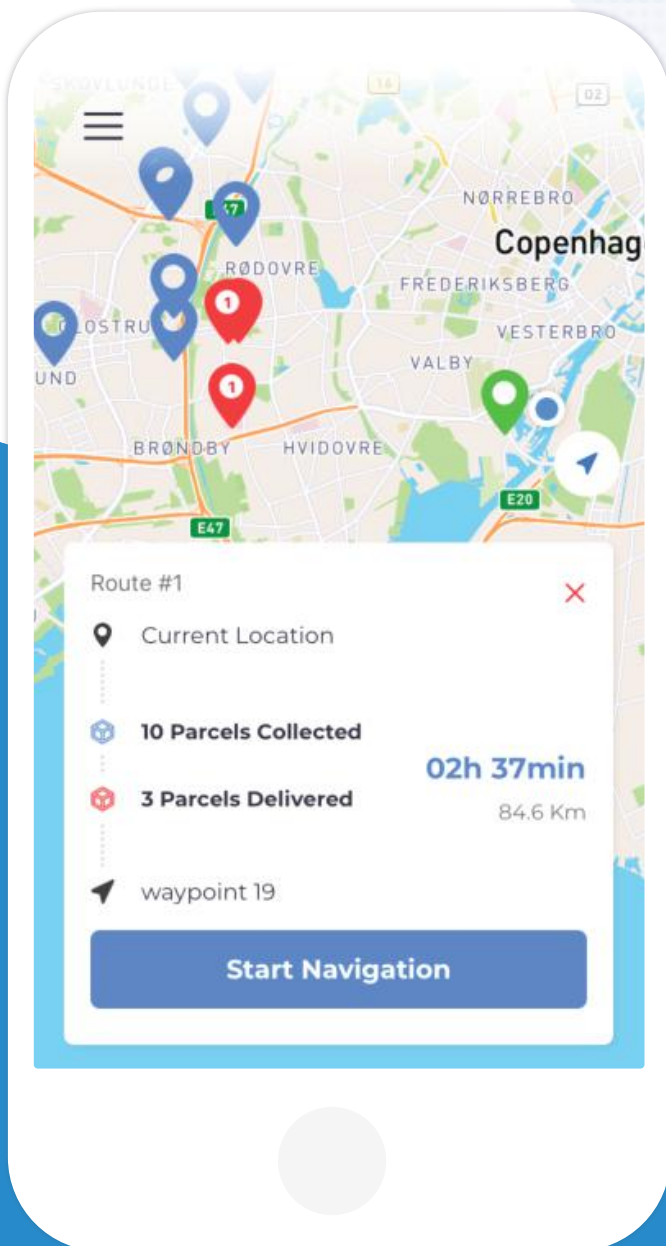**Client**
A parcel delivery company

Industry
Transportation & Logistics

Location
Denmark

Route #1 ✕

📍 Current Location

📦 **10 Parcels Collected**

📦 **3 Parcels Delivered**

02h 37min
84.6 Km

➤ waypoint 19

Start Navigation

GOAL OF THE PROJECT

Our client was looking for a reliable partner to develop an IT solution to streamline delivery routes and processes. Prior to this, daily delivery routes were done manually by written directions or a simple spreadsheet. As one might imagine, this cost the company in terms of efficiency and organization.

With modern tracking and route optimization, along with knowing in real-time which parcels are to be dropped off and picked up, the entire fleet can be modernized in terms of organizational effectiveness.

CORE TECHNOLOGIES

RxSwift, RxCocoa, MapBox, AWS AppSync and Cognito, XCTest, RxTest, RxBlocking
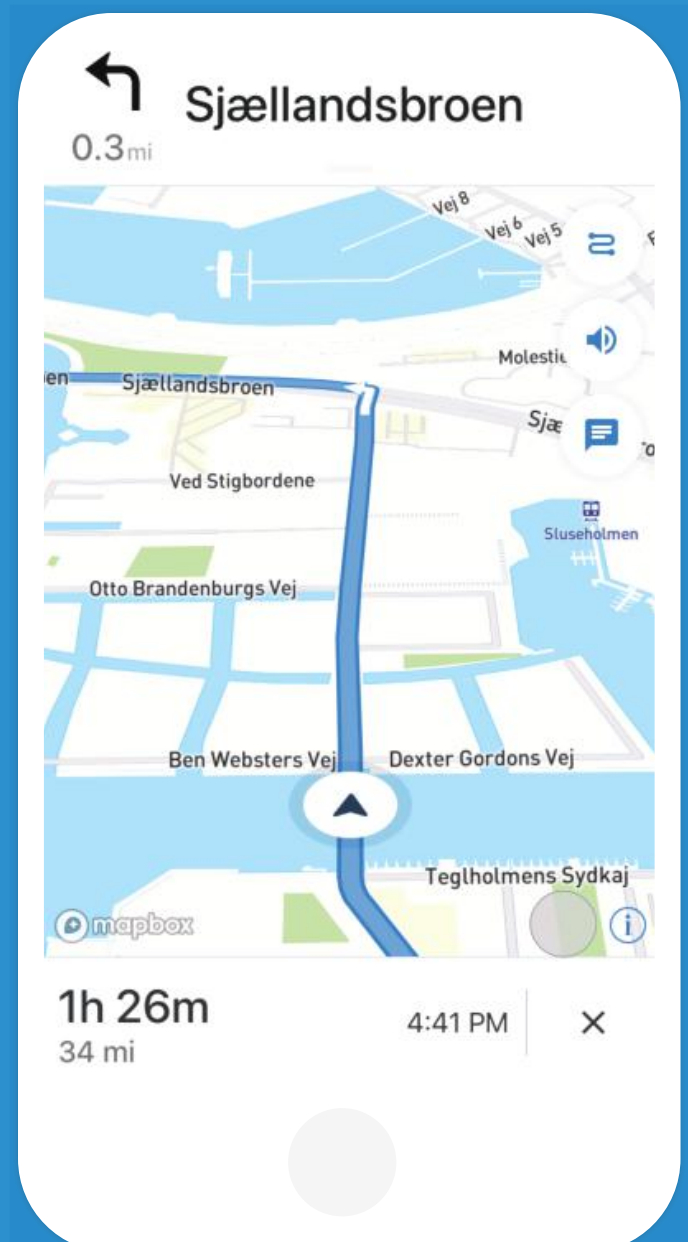
Gen

SOLUTION & RESULTS

As a solution, we developed an intuitive and user-friendly iPhone application which aims to replace many different documents and third-party tools usage. With the help of Mapbox mapping platform optimized daily route is planned and sent to driver.

Having received the route on his iPhone user follows directions of turn-by-turn navigation, and upon delivery and pickup of parcels these are confirmed via the application. Additional routes can also be integrated into the day if needed, resulting in more efficient processes and communication for everyone involved.

In anticipation of electric delivery vehicles becoming more of the norm, the app allows to add stops for charging dynamically within the planned route when system detects that residual range is close to minimal one.

Data collected during deliveries will be analyzed and used for future extension of charging stations network. In this sense, stations can be placed in optimal locations therefore solution makes positive impact on sustainable transport infrastructure in general.

← **History**

| 19 November 2019 | 10 |
| 01h 40min - 100KM | 2 |

| 10 January 2020 | 1 |
| 00h 05min - 0KM | 8 |

| 19 November 2019 | 10 |
| 01h 40min - 100KM | 1 |

| 19 December 2019 | 1 |
| 00h 01min - 1KM | 6 |

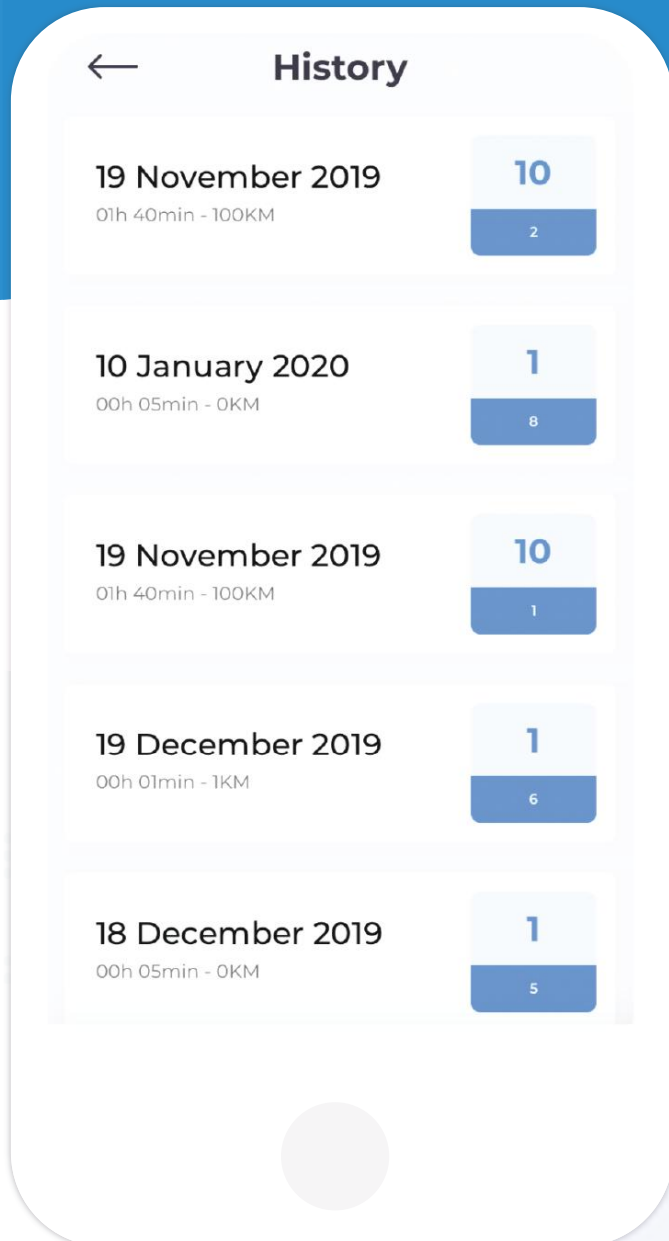| 18 December 2019 | 1 |
| 00h 05min - 0KM | 5 |

CHALLENGES

As application heavily relies on proper navigation the main challenge was to find a good solution which satisfies the client's business requirements in terms of mapping.

After investigation we decided to integrate Mapbox, which is an open source mapping platform for custom designed maps. It has its advantages, like simplicity and convenience. Also, what was important in our case, it allows to use turn-by-turn navigation out of the box.

But when it comes to the development of something really custom – developers may face different issues and obstacles. One of the biggest issues was implementing navigation with more than 12 waypoints. By default, Mapbox only supports navigation between 12 waypoints (only 3 if you want traffic data to be taken into account).

Our solution was to split the route into chunks and calculate the route for each of them, then dynamically switch routes after arrival to the final waypoint of each sub-route.

Consequently we made it possible for the client to add as many waypoints to a daily route as needed because it was crucial from business perspective.

![Gen logo]

"The team at CIGen has been supportive of our project targets
from day one and their skillset has helped kick-off the first stage
of our logistic system, the IOS app implementation stage.
The agency integrated well with our developers and
the communication has been effective through emails,
Slack and Skype. CIGen team is customer-oriented
and they created a flexible project structure to accommodate
the schedule of both companies during the holiday season.
We are happy to have had their support and expertise!"

Andreea Spaima,
CFO at evolvT