

Parking Garage Application

Introduction

Conclusion Mediaan is an international IT company, founded in Heerlen, the Netherlands, in 1969. We are in Heerlen, Amsterdam, Düsseldorf, München and Brussel. We believe that technology can make a difference in every company. Using smart processes and the newest technologies, companies can connect, inspire and grow.

We deliver technology ranging from mobile apps to back-end services. Quality is of the utmost importance to us and our designs are unique. As soon as customers are interested in collaborating with Conclusion Mediaan, but aren't sure of the feasibility of a project, Mediaan will offer a Proof of Concept. Currently, Conclusion Mediaan has an idea for parking garages. However, this can only be realised with limited budget. Therefore Conclusion Mediaan turns to students.

Case

Parking garages are usually quite similar to each other. You drive to the gate with your car, get a ticket after which the gate opens and park your car somewhere in a free spot. When you leave, you first pay off your parking ticket and then drive to the gate which then opens for you. A company that owns some parking garages receives a lot of complaints from people that the ticket machines are often malfunctioning or the queue of people is so long that you have to wait long before you can pay. The company wants to digitalize this whole process to increase efficiency and customer satisfaction. You will be developing the requested proof of concept in an agile fashion. Initially you'll focus on the MVP (the most important features) and then continue to flesh out the application.

Milestone 1 (the MVP)

When a driver arrives at the gate of a garage, he/she can open the gate by identifying themselves and the system will register their license plate. They will park their car and can do whatever they need to do. When they want to drive out of the garage, they can pay for their ticket. The gate will then open for them. People can also reserve a parking spot in the garage up-front, making sure a spot is free for them around the time they want to arrive.

The amount people need to pay depends on the length of their stay and the time of day. Parking staff can define specific tariffs for certain moments in the day or for certain days in a week. On their overview, they can see the daily revenue in real-time.

Milestone 2

The staff at the garage have a real-time overview of the state of the garage. They can see which lots are vacant, occupied or reserved. Whenever they see something in the garage that blocks a parking spot, they have the option to disable this lot in the system. For example, it might be that someone parked a car across multiple spots or some construction is going on.

Milestone 3

All of the parking garages owned by the company lie in places where many businesses reside. Some of these businesses have a lack of parking space on their own grounds and want to hire some parking spots in the garage. Employees of such companies can park their company car for free on the hired spots during work hours. The parking staff can fine non-employees for parking on these spots. Outside of work hours, hired spots can be used by anyone. Every month, the system sends all companies an invoice.

Bonus

Many parking garages have multiple exits which lead to different areas of the city above. People always want to park their car as close as possible to their wanted destination. The company has decided to invest in projectors that can project arrows on the ground that drivers can see. By stating their destination (by reserving up-front or indicating it at the gate), the system will lead them to a free parking spot that is closest to the exit for their destination.

Technologies

You will touch upon the following technologies:

- Webservices / back-end systems
- WebSockets / events for real-time communication
- Front-end development
- Databases