# Parking Garage

# Project plan Mediaan

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# Client:

The client for this project is Mediaan, with the product owners Cliff Wings and Rik Waelen.

We can contact them through the following email addresses:

* Cliff Wings: [cliff.wings@conclusion.nl](mailto:cliff.wings@conclusion.nl)
* Rik Waelen: [rik.waelen@mediaan.com](mailto:rik.waelen@mediaan.com)

We will work directly with them to clarify the requirements of the project and define the user stories for each sprint planning after which end, we display the results in the sprint review.

# Team:

We are Group 3 – Mediaan. Our team consists of 4 members of students of Fontys University of Applied Sciences with profile ICT & Software Engineering. Our team had the great opportunity to work directly with Mediaan’s product owners and choose a case to undertake with defined problem to which we assembled to design and engineer a solution.

Group 3 – Mediaan members:

* Yasen Alchev
* Ilja Proņins
* Camiel Adriaens
* Jelle Pahlplatz

# Current situation:

The current situation targets a car parking garage that is about to be optimized in order to make it more effective for both the employees and the clients using the car parking. The solution is to create a smoother and faster experience for both parties.

# Problem definition:

Due to the limited project Mediaan turned out to us – students for realizing a proof of concept of one of their ideas – a Parking Garage Application. The project is focused on resolving a common problem for car parking garages where the cars have to wait in long lines when entering/exiting the garage, malfunctioning ticket machines and dealing with full or empty parking spots.

# Project goal:

The project goal is to digitalize everything, reduce and simplify the process.

The newly and optimized system will be able to detect and register every car that enters and leaves the parking lot by their license plate.

Payments will no longer obstruct the process of leaving the garage by making the customers wait in line and pay at the exit causing a traffic jam. Stays in the parking will be calculated based on different factors like day of the week and time of the stay.

All the revenue will be made available to the employees in real time.

Employees will be able to see the state of the garage and all the parking spots and their state and options accompanying controlling these states.

The system will provide options for reserving a parking spot in advance for regular customers and also will be made suitable for hiring spots from big external companies for which there will be included automatic system for sending invoices to them at the end of the month.

A bonus feature will be a navigation system with projectors that guide the customers to empty parking spots near their target destination. The customers will have to provide their target destination in order for the system to find the most convenient and available parking space next to the right exit where the end objective of the customer will be.

# Deliverables:

We will be providing the company with:

* A web-based application to manage the garage that is convenient and insightful.
* Customer friendly payment system reducing the waiting time.
* Car license tracking system.
* Navigation guidance with projectors (bonus/optional)

# Non-deliverables:

There are a few things we won’t be providing:

* We won’t be training employees.
* We won’t deliver a manual.
* We will not deliver any hardware solution.
* Long-Term Maintenance.
* Integration with Legacy Systems.
* Marketing and Customer Acquisition.

# Constraints:

* Absence of budget – we do not have budget to spend and because of that we will stick to the free options that were provided to us from Fontys and online free alternatives.
* C# is going to be used as a back-end technology.
* React is going to be used for the front-end development.
* The end date of the project is fixed, and the time is split into several sprints that are 2-3 weeks long in duration – we have defined a scrum master that will keep the team going and in touch with the specified time frames correspondingly.

# Phasing:

* Milestone 1 (MVP):
  + Task 1: User/License plate registration and identification on enter/exit.
  + Task 2: Payment system
  + Task 3: Reservation of parking spots in advance
  + Task 4: Adjustable stay tariffs based on day of week, time, and other factors.
  + Task 5: Real-time overview on daily revenue.
* Milestone 2:
  + Task 1: Real-time overview of the parking spots status (vacant, occupied or reserved)
  + Task 2: Enable/Disable parking spot functionality.
* Milestone 3:
  + Task 1: Enable external companies to rent parking spots for their employees only during the working hours.
  + Task 2: Fine non-employees that park on reserved spots
  + Task 3: Automatic system for sending invoices to the external companies the costs of the services at the end of each month.
* Bonus Task:
  + Optimizing customers parking spots in relation to the exists.
    - The customer should have option to define their final destination up-front or to indicate it at the gates.
    - System finds the most optimal parking spot that is closest to the exit where the target destination of the client is.

# Risk management

## Risks

### Technical Risks:

* Lack of technical expertise among team members.   
  [Likelihood: Medium Impact: Medium]
* Unforeseen software compatibility issues.   
  [Likelihood: Low Impact: Medium]

### Resource Risks:

* Conflicts in scheduling and availability among team members.   
  [Likelihood: High Impact: Medium]
* Difficulty in obtaining external support or guidance.  
  [Likelihood: Low Impact: Low]

### Scope Risks:

* Inadequate requirements gathering and documentation.  
  [Likelihood: Low Impact: High]

### Communication Risks:

* Poor communication among team members.  
  [Likelihood: Medium Impact: High]
* Difficulty in contacting team members for updates or meetings.  
  [Likelihood: Low Impact: Medium]
* Misunderstandings with project stakeholders.  
  [Likelihood: Low Impact: High]

## Risk mitigation

### Technical Risks:

* Mitigation: Discuss the progress and current issues during daily meetings, schedule follow up meetings if required to find a solution to the issue.
* Contingency: Seek external technical assistance or tutorials if necessary.

### Resource Risks:

* Mitigation: Create a shared project schedule to accommodate team members' availability.
* Contingency: Reassign tasks or redistribute workload if a team member becomes unavailable, warn stakeholders in advance about possible delay in delivery.

### Scope Risks:

* Mitigation: Clearly define project scope and objectives, get approval from all the project stakeholder parties.
* Contingency: Request a help from tutor, ask a product owner(client) in our case for a detailed review.

### Communication Risks:

* Mitigation: Establish regular team meetings and communication channels.
* Contingency: Use alternative communication methods or tools in case of issues.