Project Indication Document

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1 User Stories

1.1 Actors

- **Government**: Use given information to set up invoices.
- **User**: Use the internet to keep track of their invoices.
- **Police**: Can trace stolen car's location.
- **Developer**: Test the system without touching real data

1.2 Epics

- Create a simulation for developers to virtually test the system in a safe environment.
- Store, retrieve, monitor and filter the movements of vehicles across the country.

1.3 Stories

1.3.1 First Epic

1. As a developer I want to generate uniquely identifiable vehicles for multi-vehicle testing.

2. As a developer I want to generate test zones for testing different rates.

3. As a developer I want to move generated vehicles over actual roads as a proof of concept for realism.

4. As a developer I want to accurately control the time steps of the simulation so that I have full control over my testsimulation.

5. As a developer I want to use a selected number of vehicles for simulation so that I can run tests with mock data on a smaller scale.

6. As a developer I want to only generate test data for a certain area so that I can run tests with mock data on a smaller scale.

7. As a developer I want to store the simulations in a separate, filterable store.

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1.3.2 Second Epic

1. As a user I want to be able to read the platform in multiple languages because I might not necessarily speak the language used in my country.

2. As a user I want to safely register an account so I have my personal account containing all information relevant to me.

3. As a user I want to keep track of my invoices so that I know how much money I have paid or will have to pay.

4. As a user I want to keep track of my vehicles so that I can own multiple vehicles, their locations and invoices.

5. As a user I want to have an insight into the vehicle movements of the vehicles I own.

6. As a user I want to safely pay my invoices online so that I can safely, directly, pay for any invoices from home

7. As a user I want to see and edit my personal data so that I can easily check and update my information.

8. As a user I want to report my car as stolen so that the police is aware they'll have to look for my vehicle.

9. As a user I want to view the ownership history and the stolen reports.

10. As the police I want to confirm or report a vehicle as stolen so that the system is aware that I want a notification when the stolen car has been spotted..

11. As the police I want to see the location history of a vehicle reported as stolen so that I'll be able to find where the vehicle has been in the past.

12. As the police I want to see the ownership history of a stolen vehicle.

13. As the police I want to follow a stolen vehicle in real time so that I can find it in case I lose it during a specific event such as a car chase.

14. As the police I want to record when an unknown foreign vehicle enters so that I can invoice them for driving on this country's roads.

15. As the police I want to have a live overview of foreign vehicles so that I know who and when enters my country.

16. As the police I want to mark a vehicle as unstolen so that everyone knows a stolen car has been retrieved.

17. As the government I want to mark an area with a specific rate so that specific areas can differing rates.

18. As the government I want to see if a vehicle is registered to an active site user so that I can see whether they're using the application.

19. As the government I want to store a movement history of every vehicle so that I can see a vehicle's past movement.

20. As the government I want to invoice the users so that they know when and how much money they own me..

21. As the government I want to see the hardware used to report a location so that I can filter on suppliers.

22. As the government I want to add and modify vehicles with trackers so that newly bought vehicles can be added to the system.

23. As the government I want to add specific rates for kilometres driven so that different rates could apply depending on the driven kilometres.

24. As the government I want to automatically recalculate an invoice so that user complaints and/or technical issues can be easily handled and possibly resolved.

25. As the government I want to see automatically generated invoices so that I can see whether an invoice has been produced correctly.

26. As the government I want a clear view into the system status so that I can overview all overviews when it comes to amount of sent invoices, users and updates.

27. As the government I want to filter the invoices so that I can find invoices based on specific attributes.

28. As the government I want to mark invoices as paid or cancelled so that I have a clear list of invoice statuses.

29. As a developer I want the website to update with new data every ten minutes so that the user always has the most recent information.

30. As a developer I want to mark users with groups so that certain users will be able to use this group's privileges.

31. As a developer I want to grant specific privileges to groups so that said groups can perform specific tasks.

32. As a government I want to share details on cars and users with other countries that we have an agreement with.

33. As a government I want to request data of foreign vehicles from countries we have an agreement with.

34. As the police we want to report when a stolen foreign vehicle entering the country so that illegal car trade is less likely to happen.

35. As the police we want to receive a report when a stolen vehicles goes abroad so that illegal car trade is less likely to happen.

36. As a developer I want to trigger an alarm when a vehicle moves in an impossible way so that possible fraud can be prohibited.

37. As a developer I want to monitor system status so that I always have a clear insight on how the system is running..

38. As a developer I want to scale the system so that I can avoid technical problems without giving users any trouble.

2 Exploration

A key insight of architecting systems is that you should always be looking at the bigger picture. In order to properly use the technologies for the proftaak someone should look ahead in order to anticipate upcoming subjects.

In this semester multiple courses will be given to look at the possibilities. These are Java Enterprise Applications, Design Patterns for Integration and Software Ontwikkelprocess. In the following sub-chapters we will shed a light on the roadmap for these.

2.1 DPI

Design patterns for integration is focused on making large and distributed applications work together to achieve higher scalability. The course itself looks at the specific implementation on how this is achieved, with the emphasis being on distributed messaging systems.

In these systems big applications are broken into smaller parts which can be handled by a singular tiny application. A long operation like creating an invoice will be broken up into a large amount of smaller tasks, which are distributed through a central messaging system. These tasks will enqueue themselves and will be executed at some point in the future.

The course itself focuses on the specific implementation patterns for distributing, consuming, aggregating, routing, transforming and monitoring.

2.2 SOP

Software Ontwikkel Process is a course aimed at the operations side of an application. It teaches the importance of build processes, continuous integration and delivery and the integration of several code metrics. The aim is to teach pupils how to set up an automated pipeline that handles all these details and gives an overview of code quality and deployability.

2.3 JEA

The biggest course of the semester concerns the usage of the glassfish server to it's maximum capability. The roadmap shows that the following subjects will be under discussion;

- Enterprise beans and dependency injection

- Persistence

- Events and interceptors

- Batch processing

- Security and authentication

- Integration testing

- Token based authentication

- Websockets

- Restful services

These subjects all seem very useful and will be required in time. Due to the scheduling of the proftaak these items will be discussed at the same time they will be implemented, leading to the proftaak and JEA working in tandem.

3 Tools

3.1 Git

we will use Github for versioncontrol, this because it is easy to use and we are all familiar with it.

3.2 Backlog

for sprint planning we also use Github. so we have everything in one location

- Scrumboard for Simulation
- Scrumboard for Java EE Application
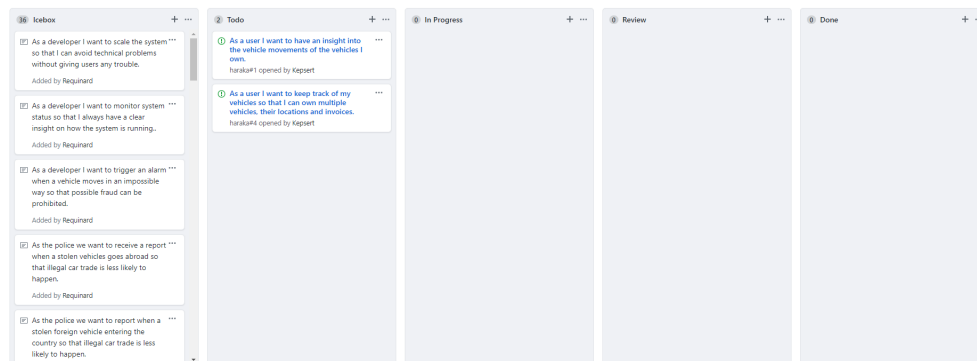
3.3 Sprint one planning

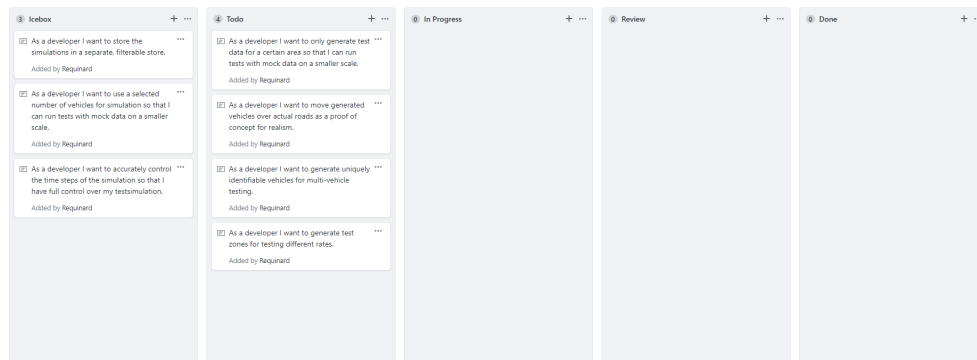Figure 3.1: Backlog sprint one regarding the Java EE Application

Figure 3.2: Backlog sprint one regarding the Simulation