

Berichttitel

BERICHTSUNTERTITEL

Name | Titel des Kurses | Datum

# Introduction

Traffic Control International inc. will revolutionize the traffic control market. By moving from selling physical traffic lights to selling services for already exiting traffic lights. This document gives an overview over the different specifications from the traffic control management system, that we sell. It gives an overview over the different functions and helps our developers to know exactly what to implement and what to look out for.

## Purpose

Traffic Control International Inc. (TLI) wants to develop a traffic lights management system for intersections. This project is about developing such software. The revolution in the traffic light market TLI is aiming for, lays using already in place equipment and implementing behaviour over multiple intersections.

## Scope

This project is about delivering a software to manage traffic lights at an intersection. All the possible sorts of traffic light present on an intersection, should get managed by the system. But its not part of the project to apply its functionalities to the intersection’s hardware. The Netherlands and Germany are the targeted markets for the system. Therefore, the system should apply a traffic light logic of both countries. After this project is finished, the logic of other countries should get added. The system therefore needs to be extendable. Because of that maintenance is needed frequently. Therefore, the system should have the option to do that. The intersection consists of two different traffic light types. One for cars and one for pedestrians. Both should not be able to allow passing at the same time on the same lane. A lane should be able to determine how much traffic is there. So, the intersection can adjust timing accordingly. The intersections should be able to communicate with each other to implement behaviour over multiple intersections. To lower the risk of accidents the intersections, the traffic should be failsafe. Crossings over two different lanes should be minimized to reduce the risk of accidents.

## References

## Overview

# Overall Description

## Product perspective

## Product functions

## Constraints

### Design Constraints

* The system shall be designed with respect to the applicable laws (EU laws, Dutch and German laws and any other individual country laws).
* The system should be **extendable and easy maintainable.**

### Software Constraints

* CamelCase naming convention shall be used for naming variables, classes, interfaces etc.
* The system shall be written in Java Programming Language.
* The system may have a user interface or may accept input via console, the developers shall decide.
* The business logic of the system shall be tested with unit tests.
* Mocking code packages shall be used for complex and independent business logic testing.

### Hardware Constraints

The system shall be a simulation of an intelligent traffic lights control system; therefore, **no external hardware is required**.

* The system shall be runnable on most used OS (Windows, Linux, Mac).

### 2.3.4 Interfaces to other applications

Project management applications:

* Github – source control and versioning.
* Jira Agile board – tasks, tasks timing and tasks priority.

## Assumptions and Dependencies

We assume several things during developing the software:

* The pedestrians shall be able to control the traffic light system by pressing a button which requests that green light is displayed for them.
* The car drivers shall NOT be able to control the system in any way.
* The software is to be used first in the Netherlands and Germany and afterwards in other EU countries.
* Most EU countries have similar or entirely identical traffic light systems.

Use Cases

1. A car wants to cross the intersection in any direction
2. A pedestrian wants to cross a street.
3. A bike wants to cross the Street
4. An vehicle responding to an emergency wants to cross the intersection
5. A vehicle experiences a green wave
6. Vehicle uses a green arrow
7. Car drives onto a red light and the intersection switches to green, because there are no other cars

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| Name |  |
| Actor |  |
| Description |  |
| Precondition |  |
| Scenario |  |
| Exception |  |
| Result |  |