Simulation Project - Team Tetrahedron

Milestone #3 – Conceptual Model

Image source: https://cdn.ottopix.de/wp-content/uploads/2019/04/Magdeburg-Panorama-%C3%BCber-der-Hubbr%C3%BCcke.jpg

Agenda

01

The Conceptual Model

The abstraction of the node to be simulated

02

The Assumptions

An overview of the assumptions made

03

The Data

The data being measured and used as simulation results

04

The Experiments

An overview of the experiments to be performed

01

The Conceptual Model

The abstraction of the node to be simulated

The Node

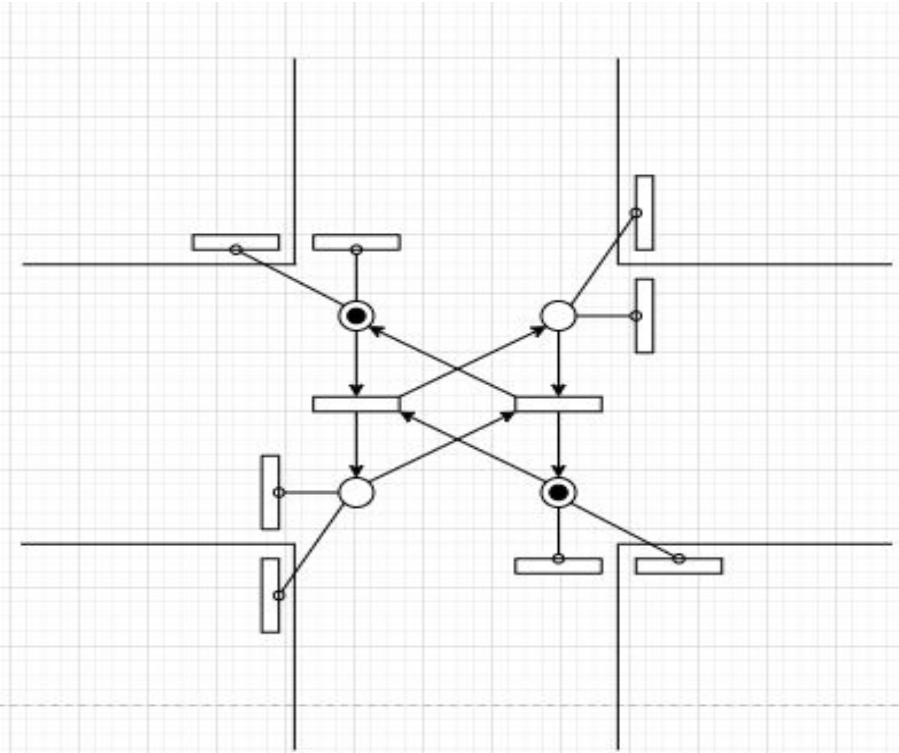
The node consists of conjunction of 3 different roads.

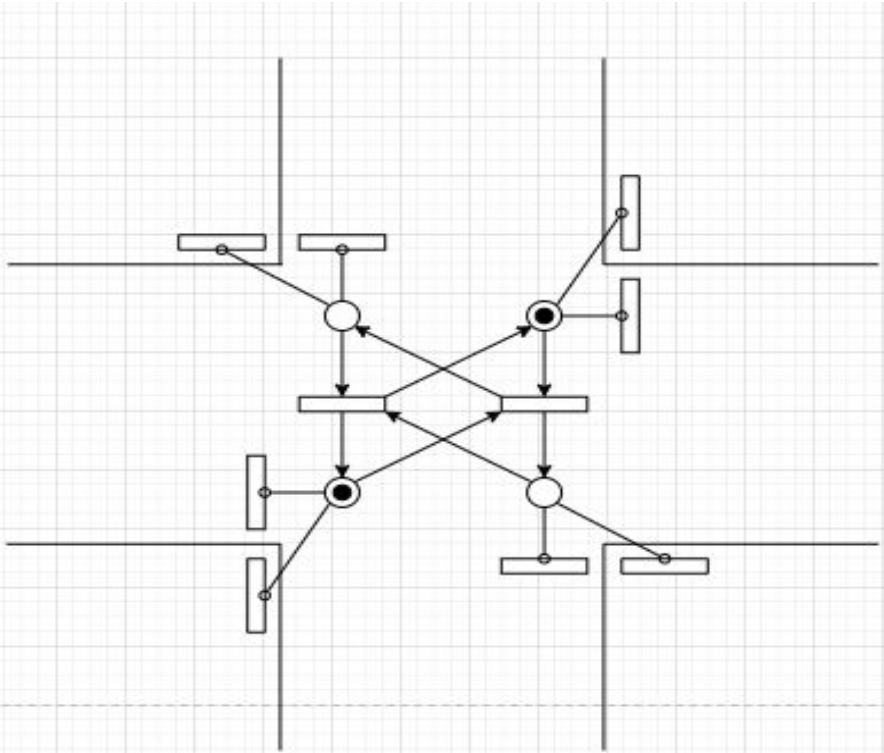
01 Leipziger Straße from North and South

02 Am Fuchsberg from the West

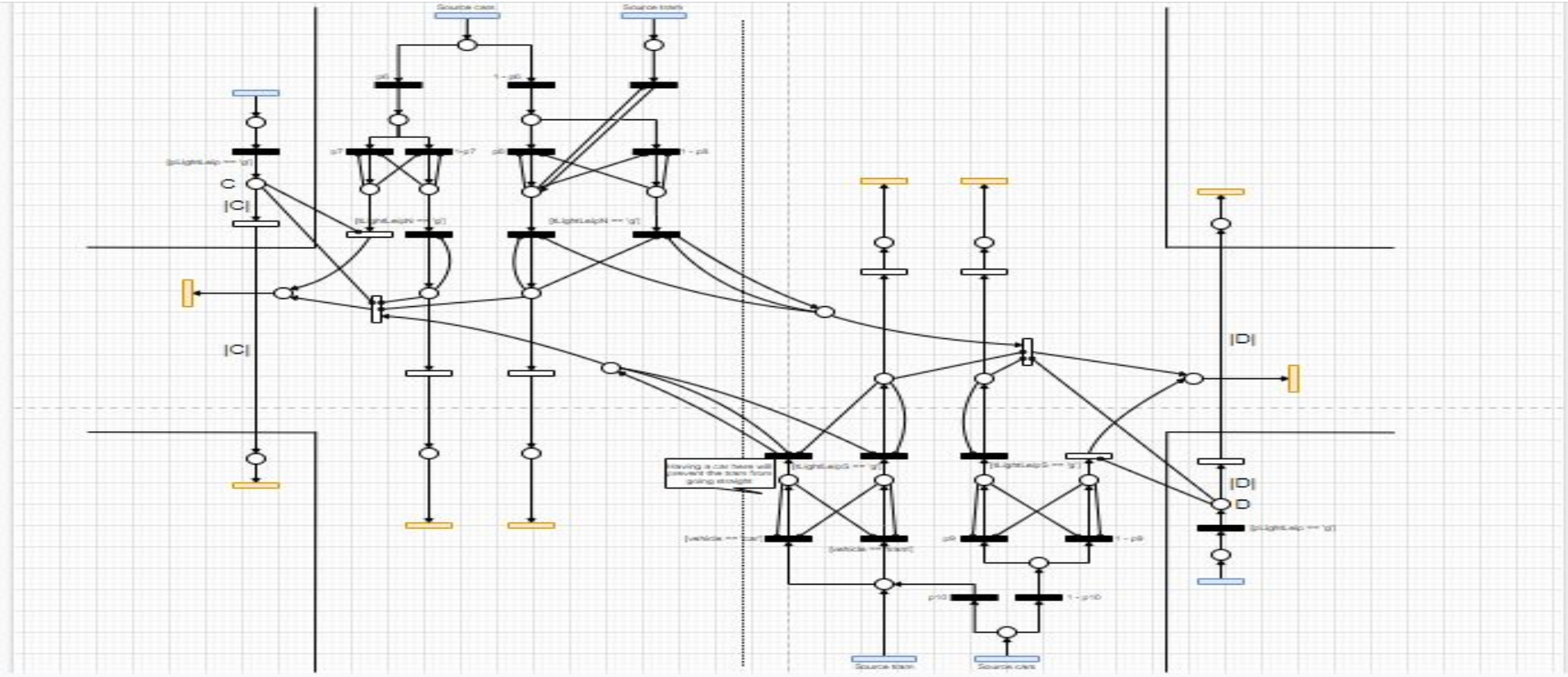
03 Erich-Weinert Straße from the East

Traffic Phases

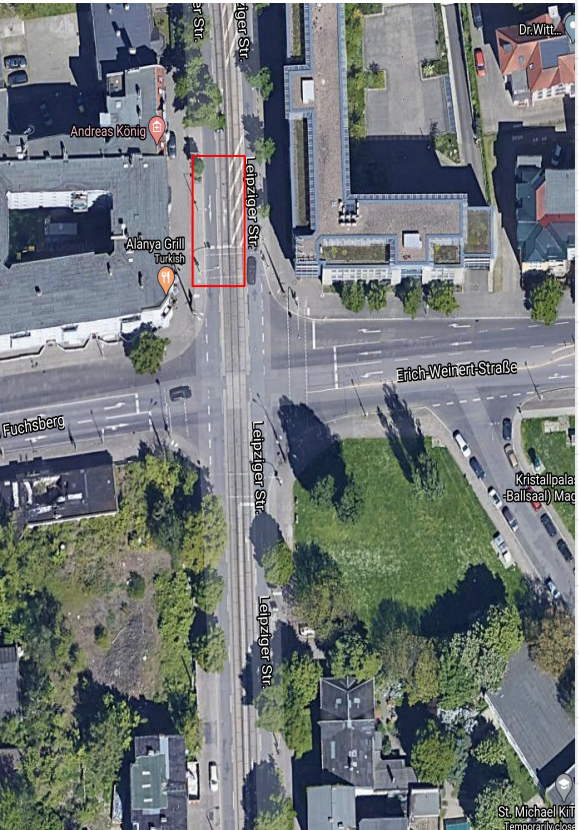


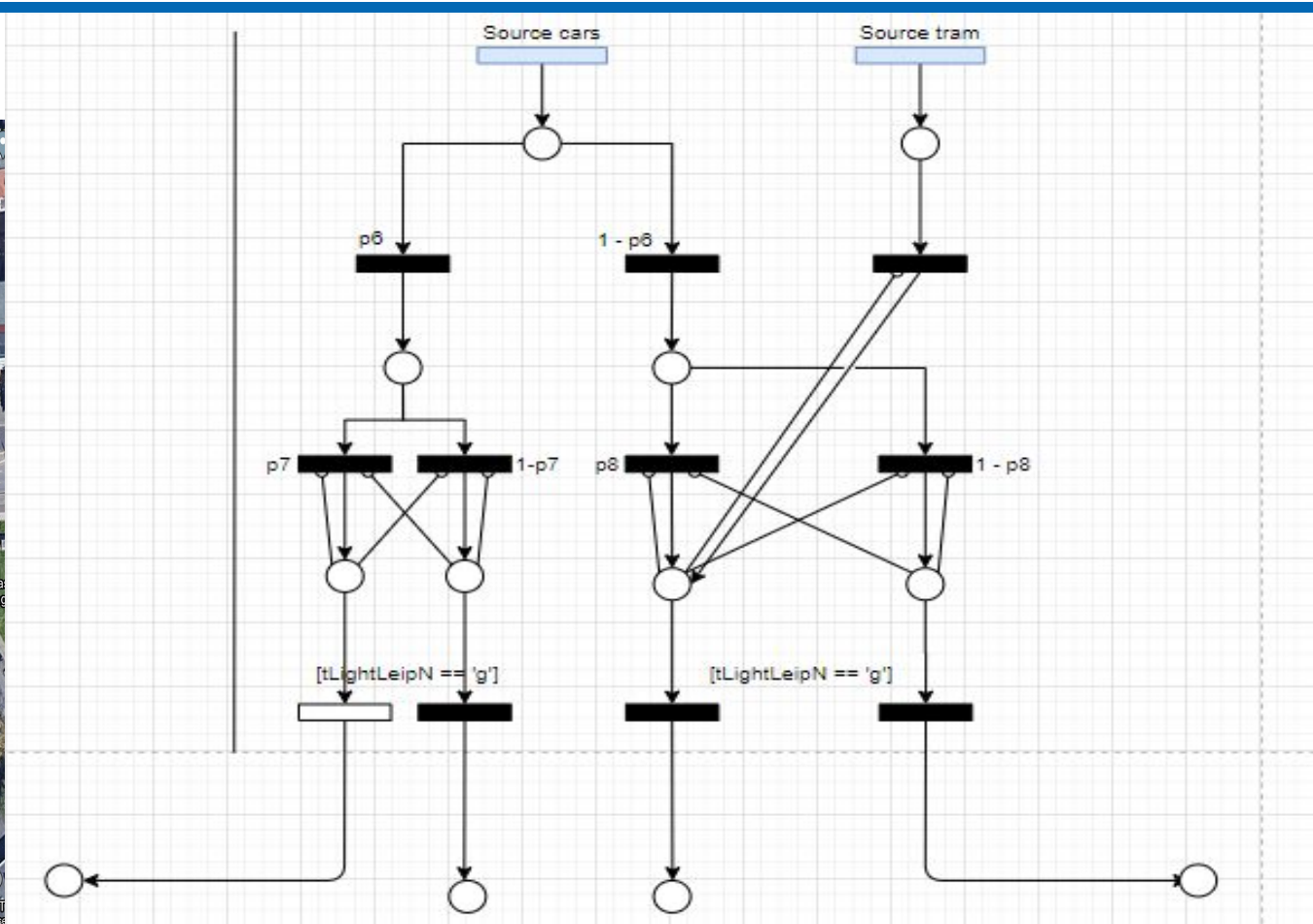


Leipziger Straße(N)- Leipziger Straße(S)

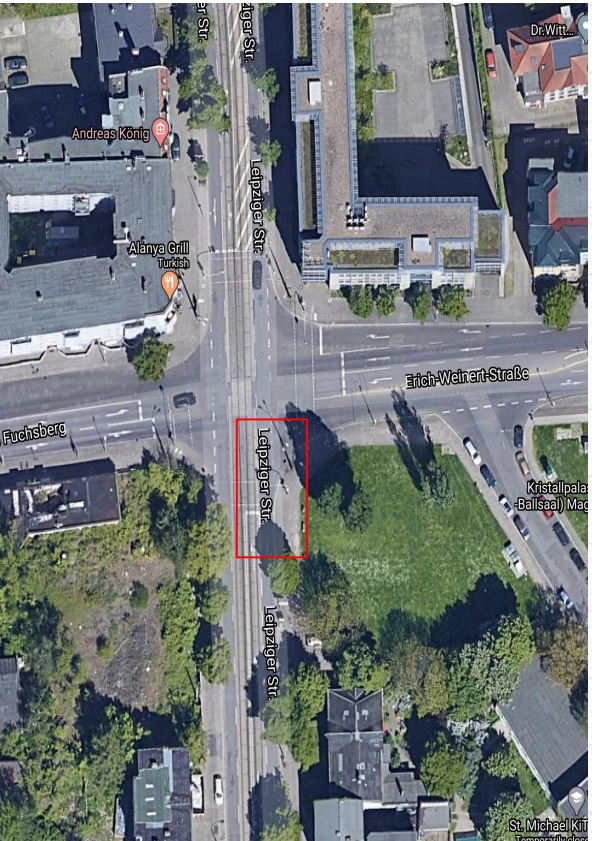


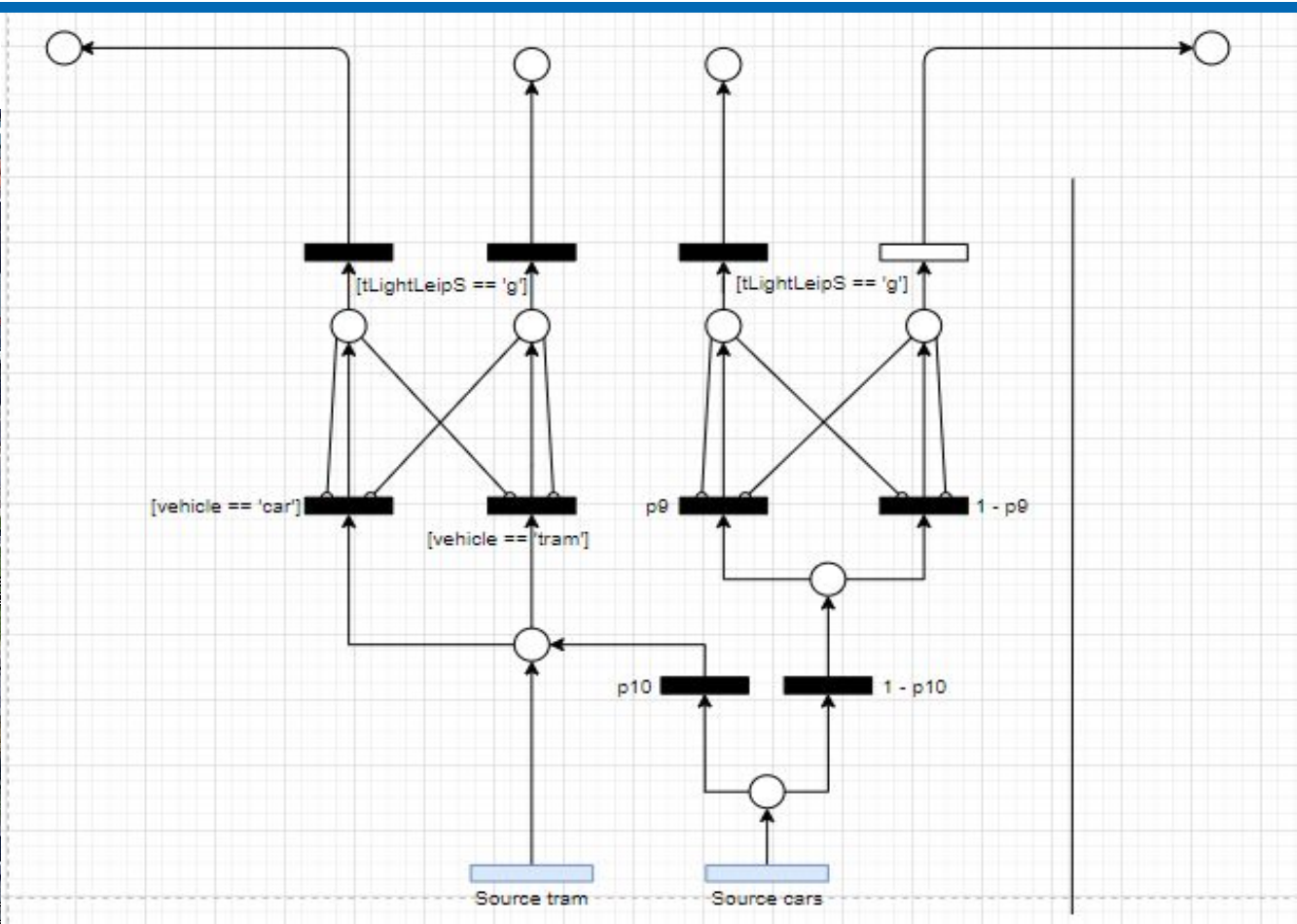
Leipziger Straße(N)



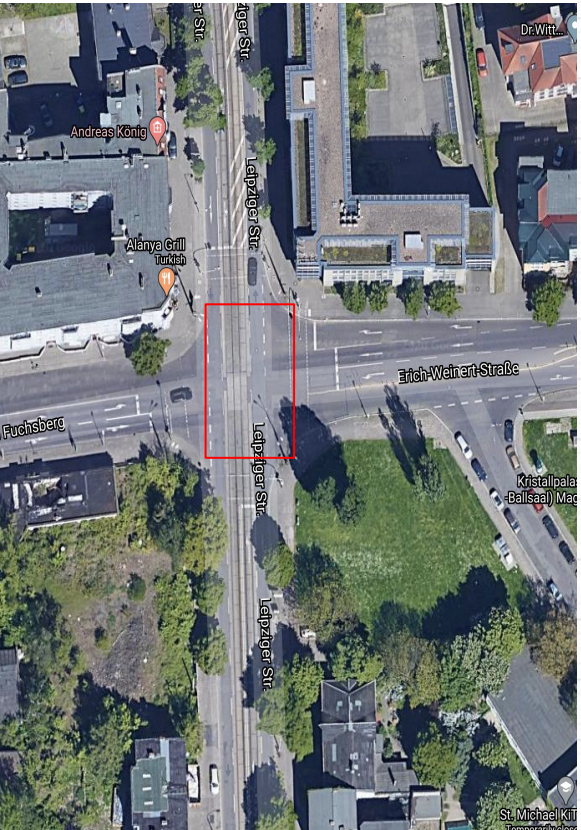


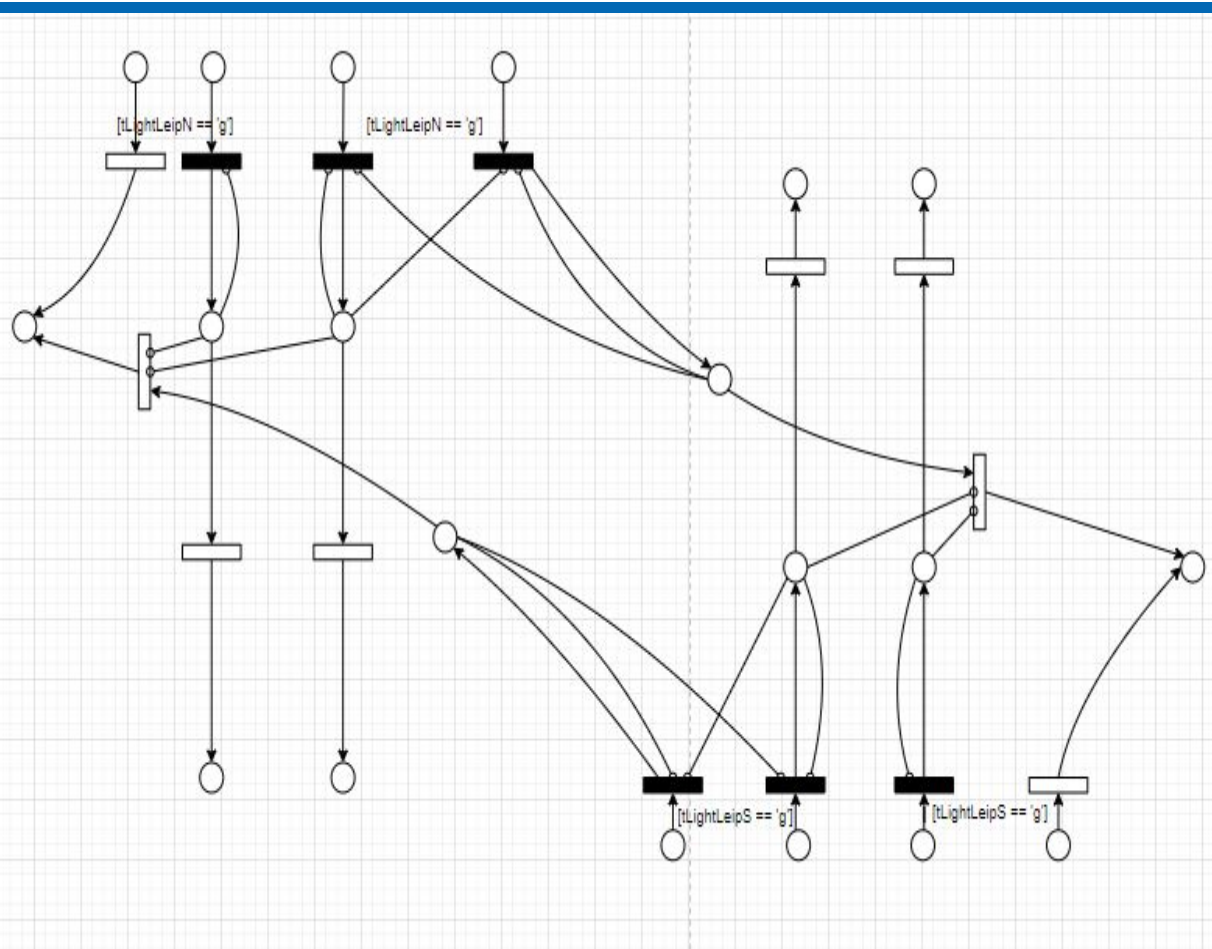
Leipziger Straße(S)



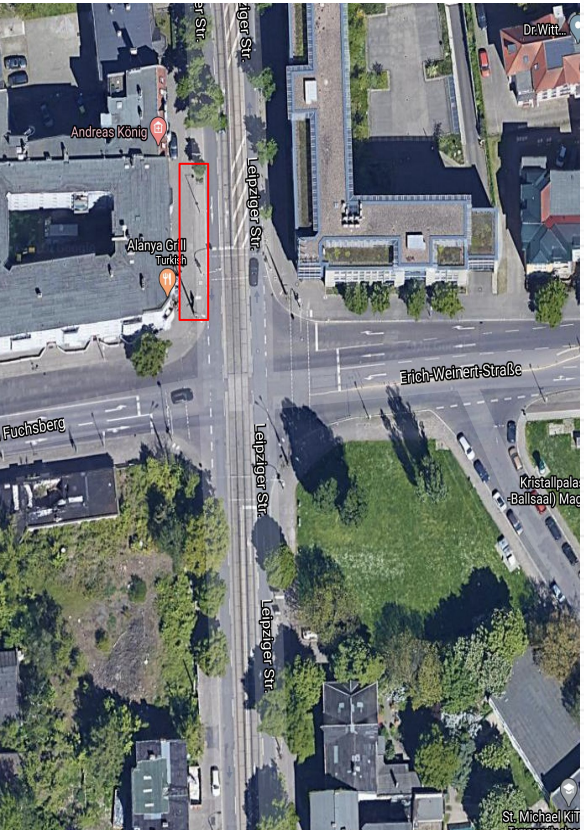


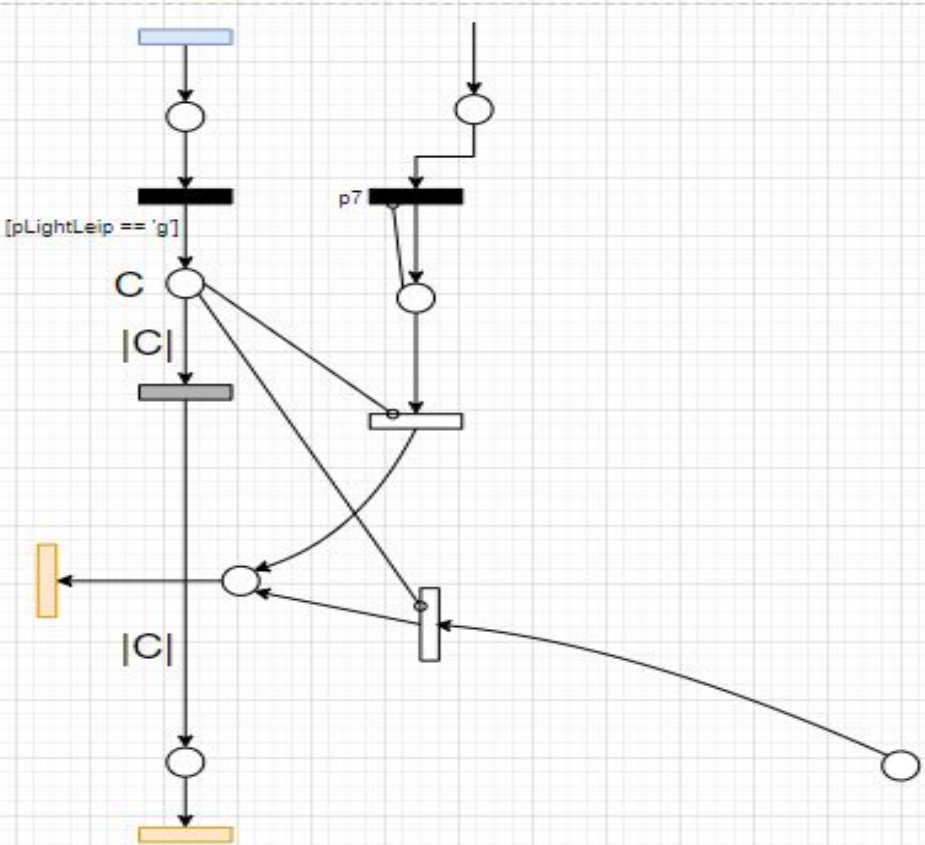
Interactions



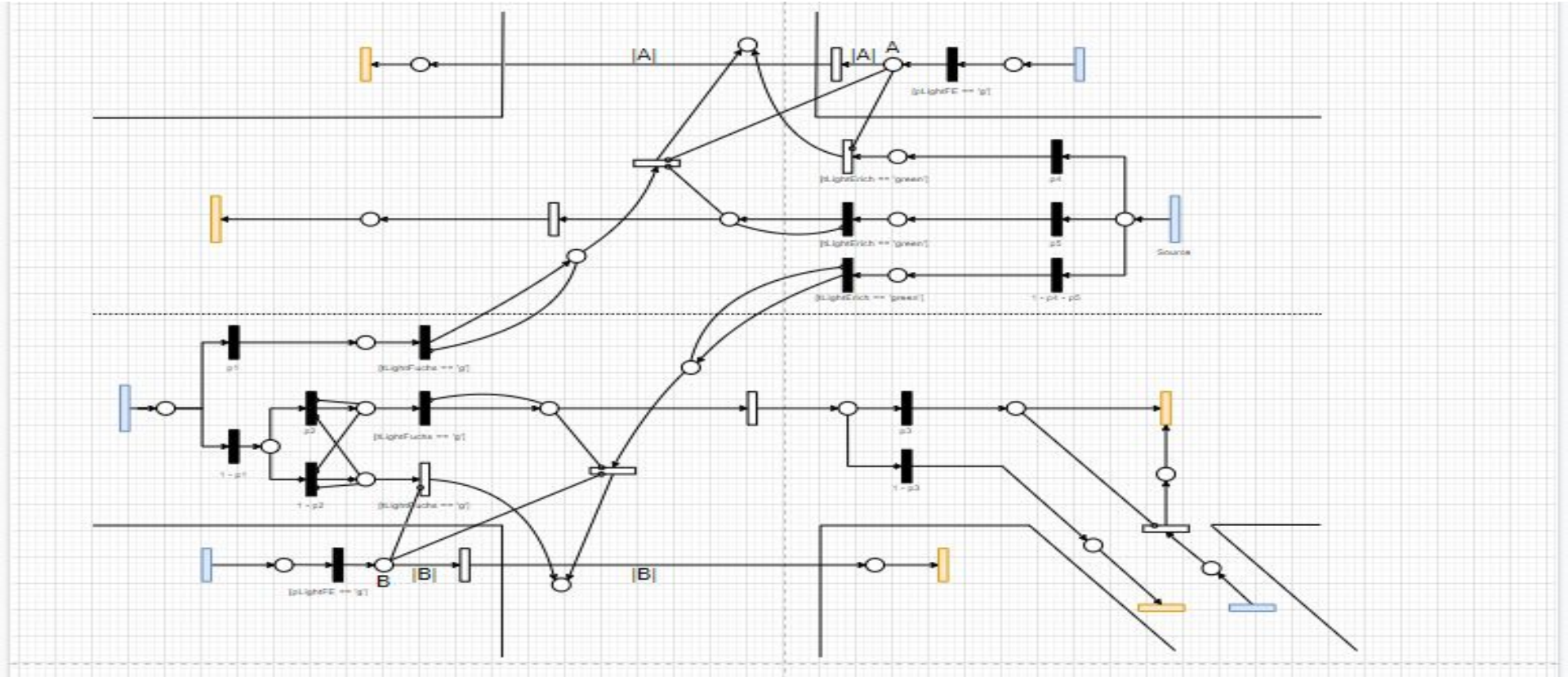


Pedestrians

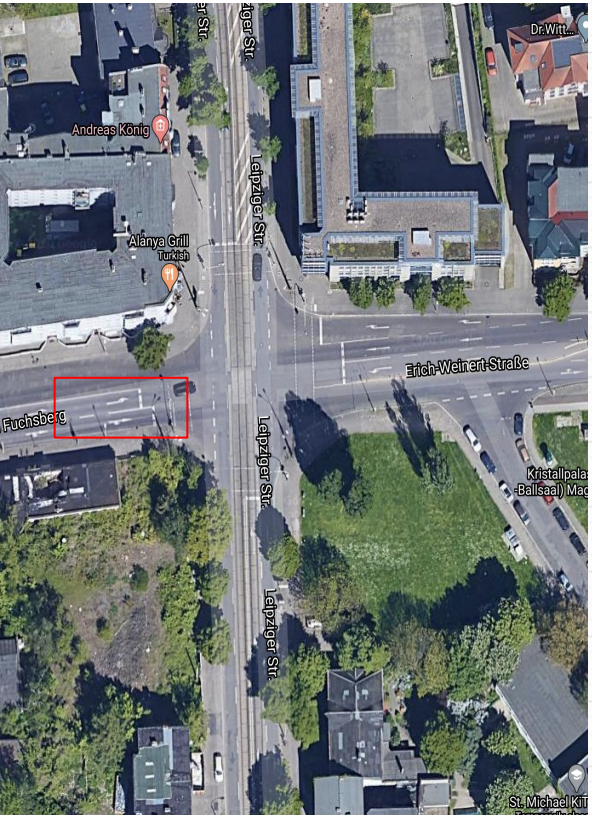


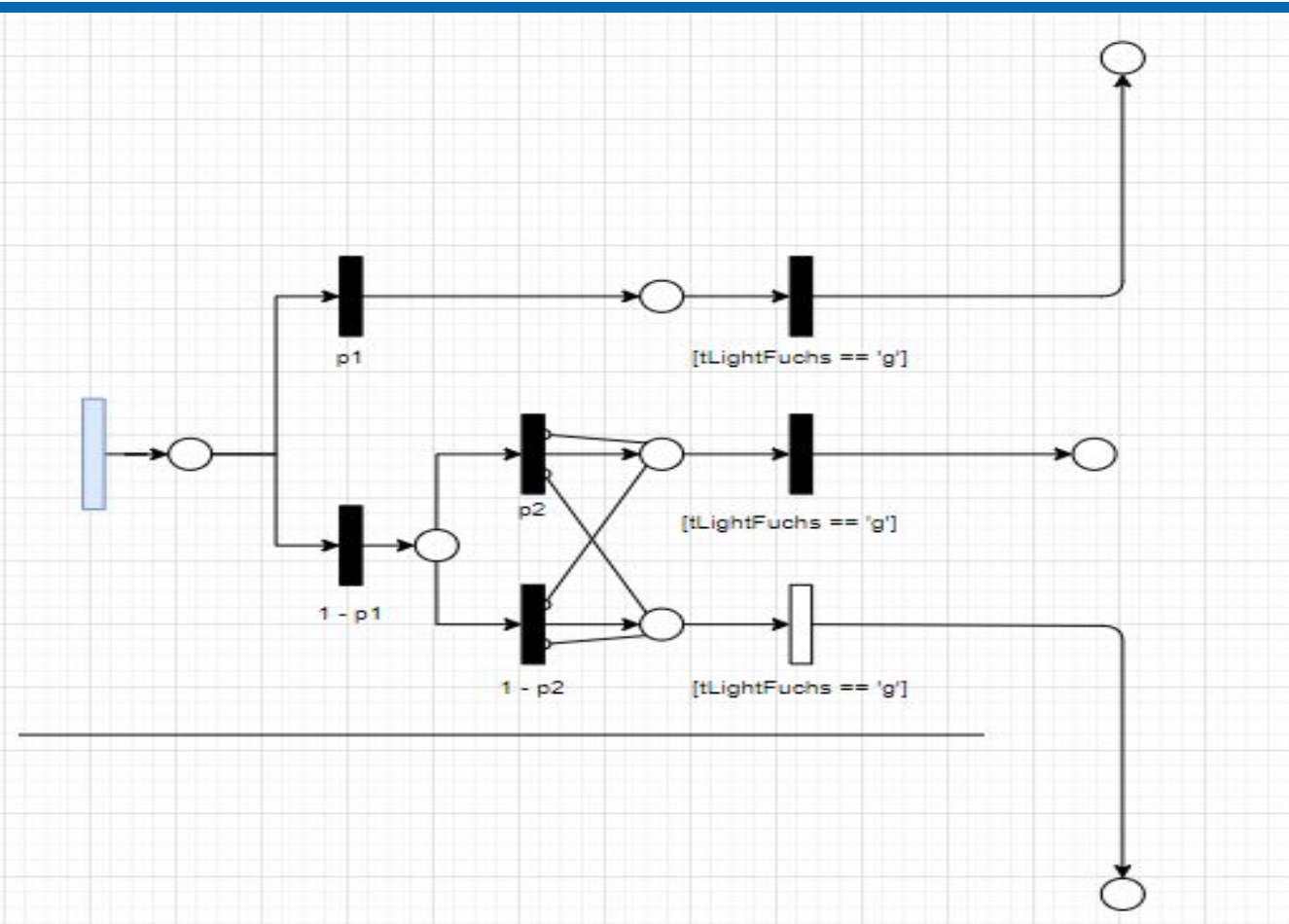


Am Fuchsberg - Erich-Weinert Straße(S)

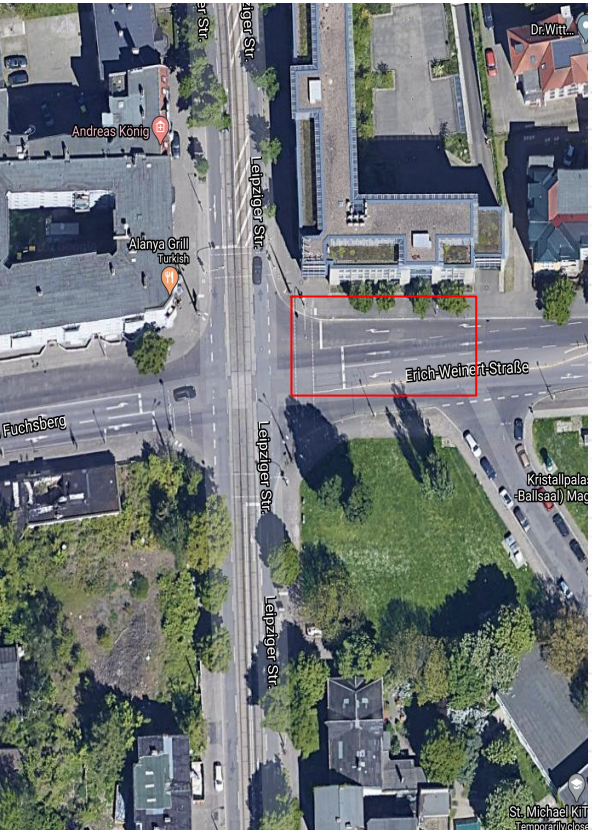


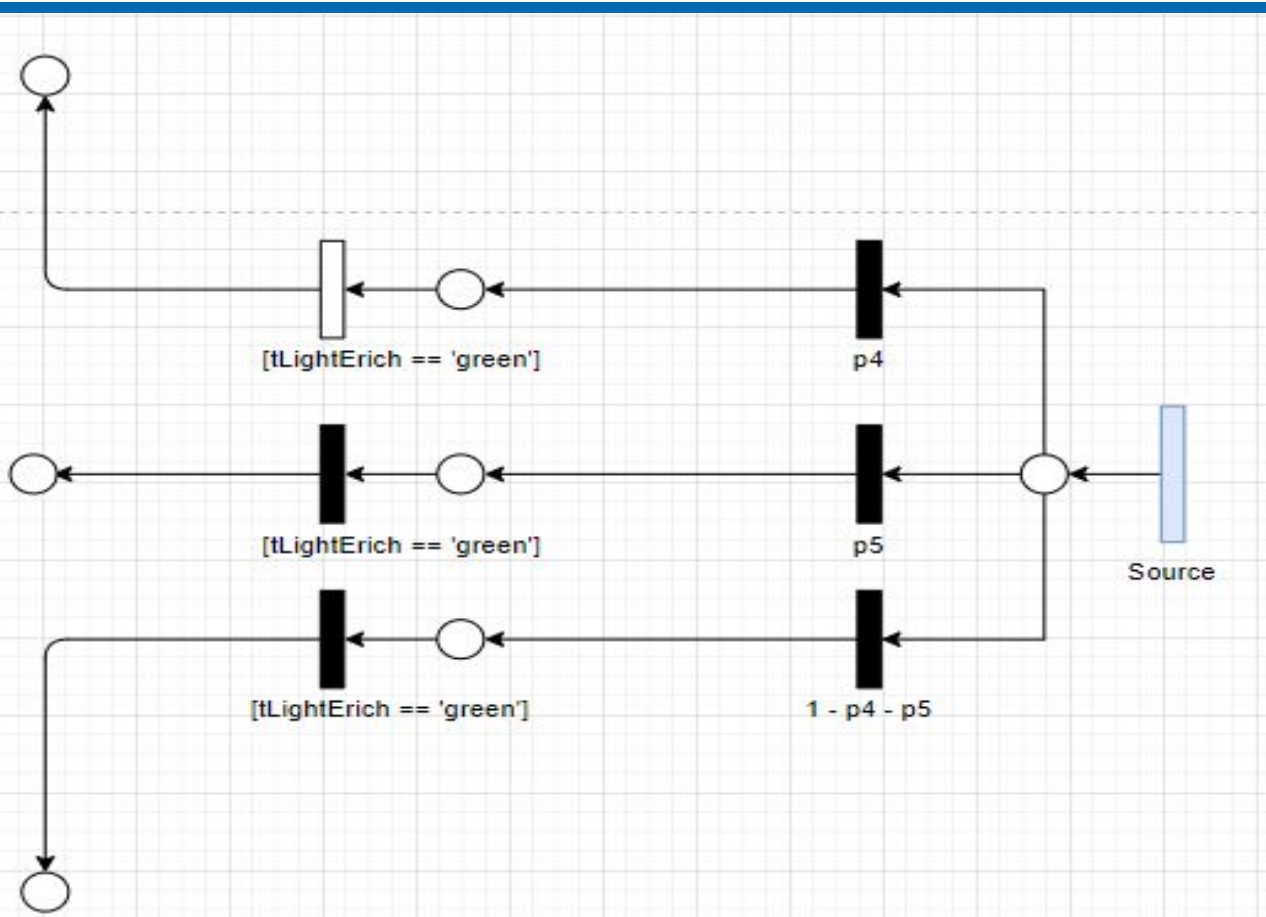
Am Fuchsberg



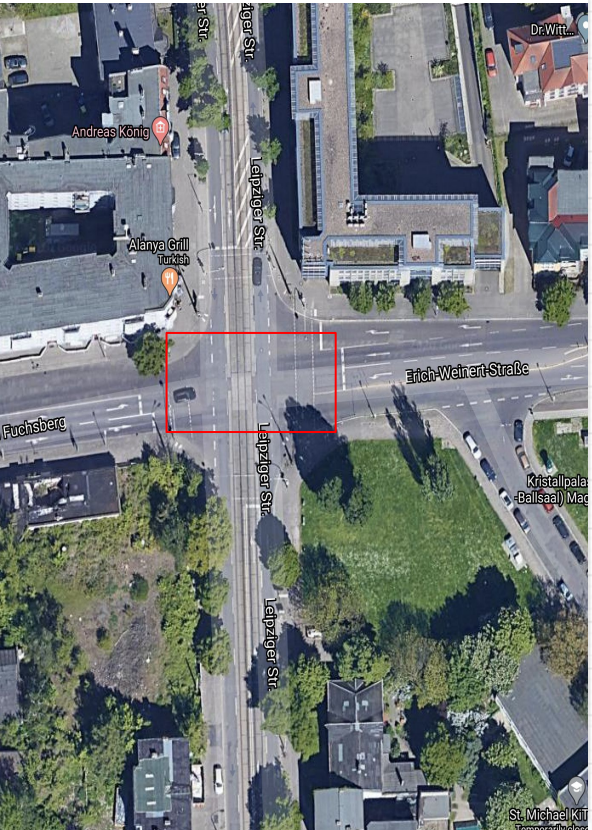


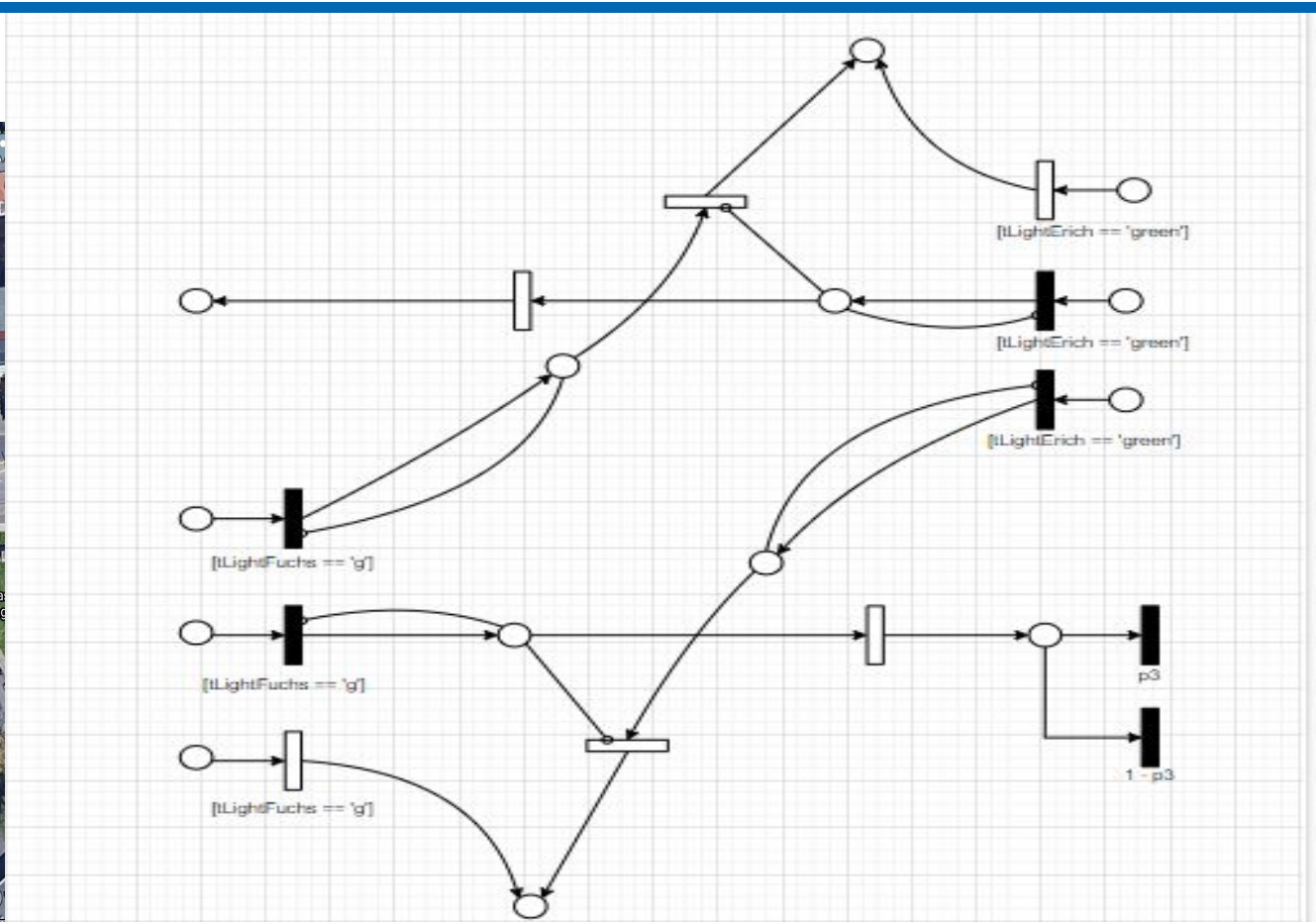
Erich-Weinert Str



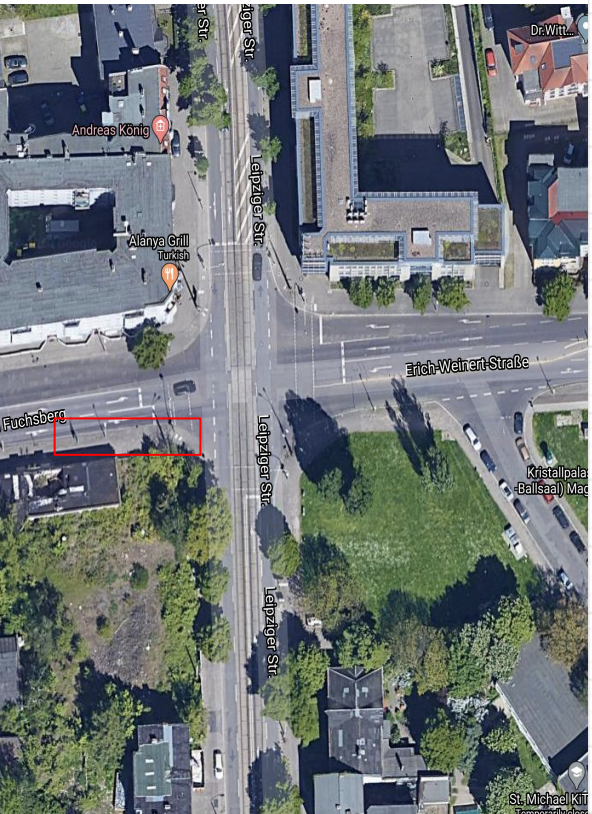


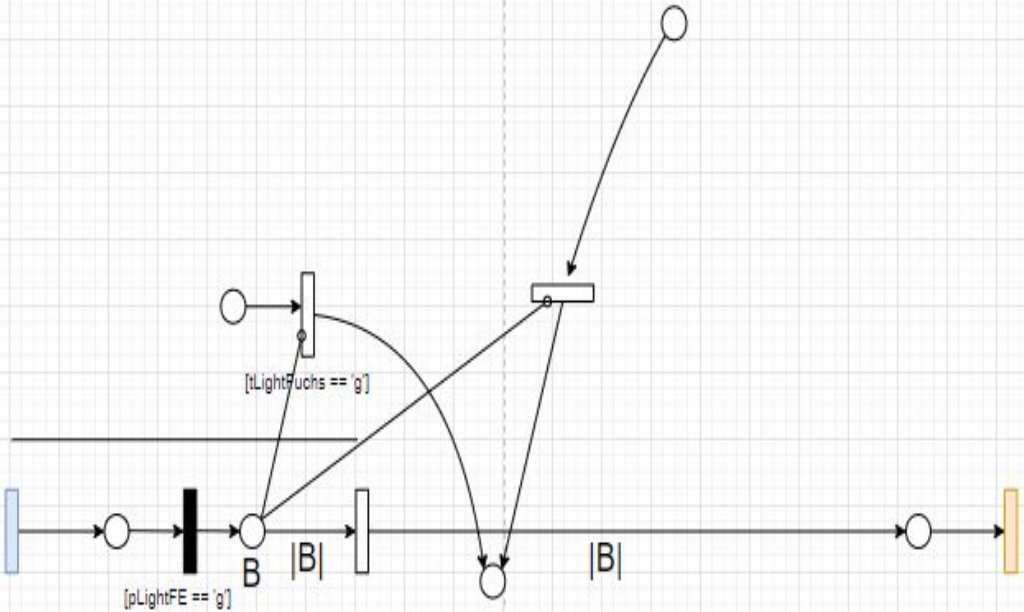
Interaction





Pedestrians





02

The Assumptions

An overview of the assumptions made

The Assumptions

01 We assume all the motor vehicles are of the same type.

02 We assume all pedestrians and cyclists behave in the same way

03 Pedestrians go in only one direction. We will model different sources for each of the possible directions.

04 We assume there are no major changes in the behavior of cars and pedestrians between different years

05 When trams and cars both come together, trams are given higher precedence.

03

The Data

The data being measured and used as simulation results

The quantities to be measured (Input)

01 Interarrival times of cars.

02 Number of cars going in each direction.

03 Traffic light duration.

04 Tram timings, tram and cars alternation.

05 Interarrival times of pedestrians and cyclists

06 Time to cross the street

The quantities to be used as simulation results

01 Average cars between source and sink

02 Queue Lengths for each lane

03 Average time the cars takes to travel from source and sink

04 Amount of cars passing through a transition

Experiments

01 Vary traffic light duration.

02 Open traffic lights for each direction in different phases.

03 Include a free lane to turn right for cars from Leipziger str. to Erich-Weinert str.

04 Allow car traffic on the blocked tram line in Leipziger Str.

05 Overload the system and check the behaviour of the traffic

06 Bridge for cars going straight in Erich-Weinert-Straße / Am Fuchsberg

04

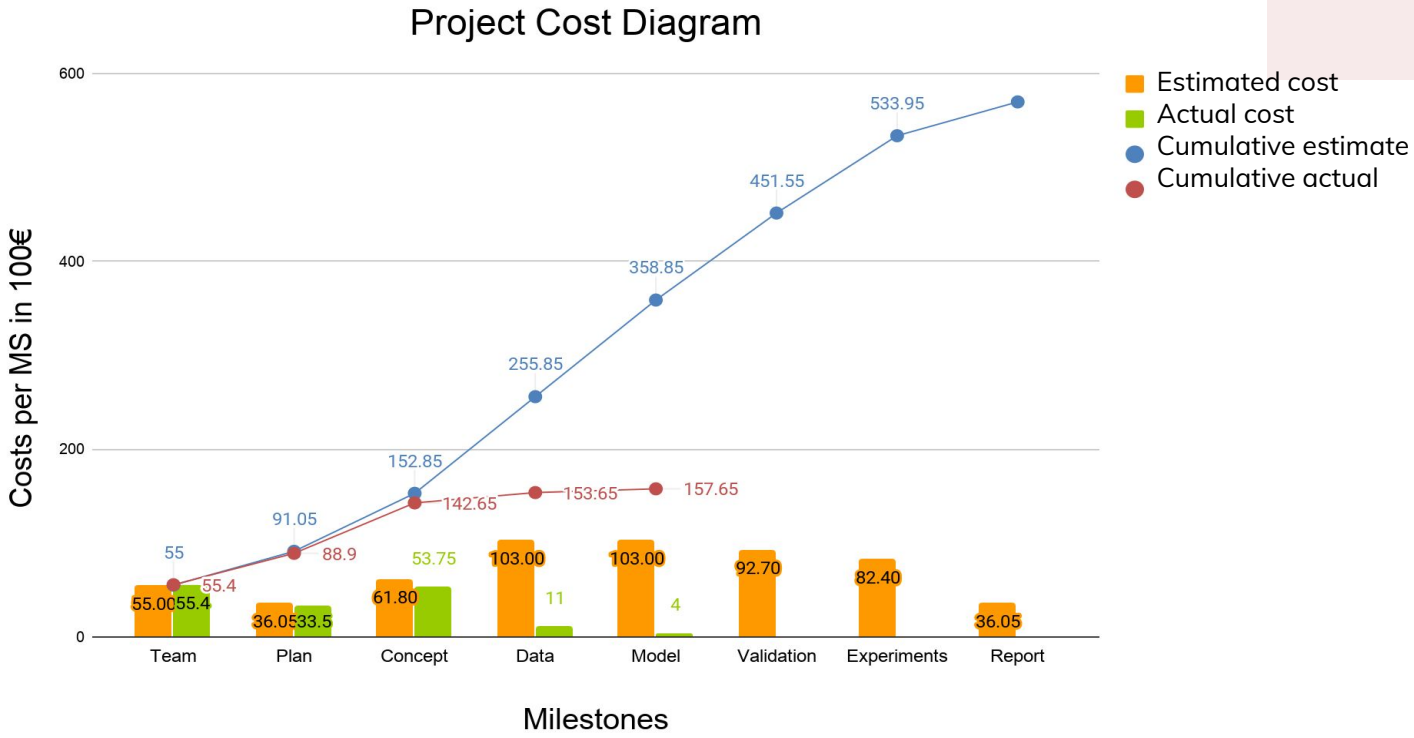
So far

Tasks completed and costs incurred so far

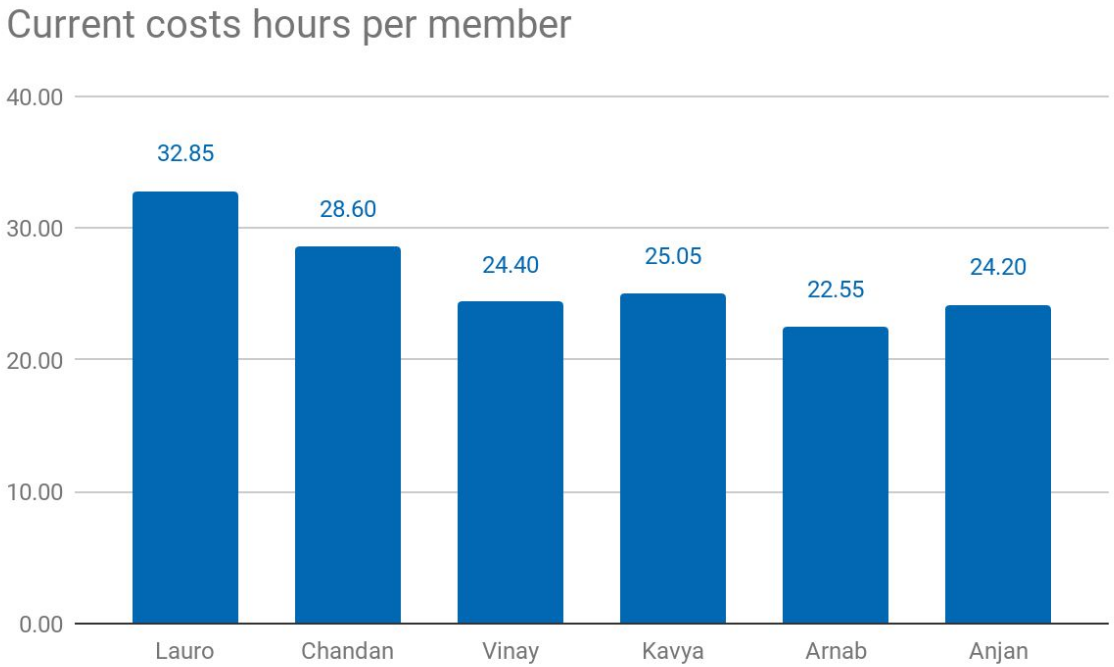
Tasks completed so far

- ✓ Started analyzing the data from previous years
- ✓ Estimate time per work packet.
- ✓ Update work as issues in GitHub.
- ✓ Completed the conceptual model.
- ✓ Started working on the anylogic model
- ✓ Started analyzing the data from the city of Magdeburg

Cost comparison



Current costs as % of total cost: 26.28%



Current costs:
15.765,00 €

Lessons learned

01

Have a proper justification for each slide

02

Be agile with the planning

03

Prepare documentations for each milestone

04

Add only the necessary content on the slides

05

Update worksheet evenly throughout the week

05

Thank you!

Questions?