



Simulation Project

Team B

Improve Throughput of the Main Road
Hannoversche Str. / Diesdorfer / Ummendorfer Str.

Milestone 7

Presented by
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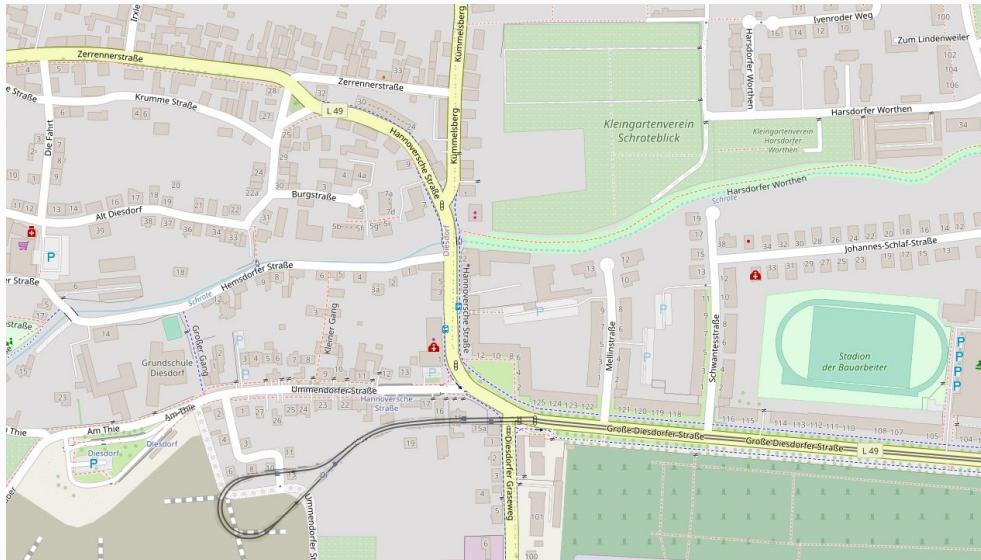


Overview

1. Experiment Description
2. Experiment Results
3. Recommendations
4. Problems Encountered
5. Lessons Learned



Experiment Description

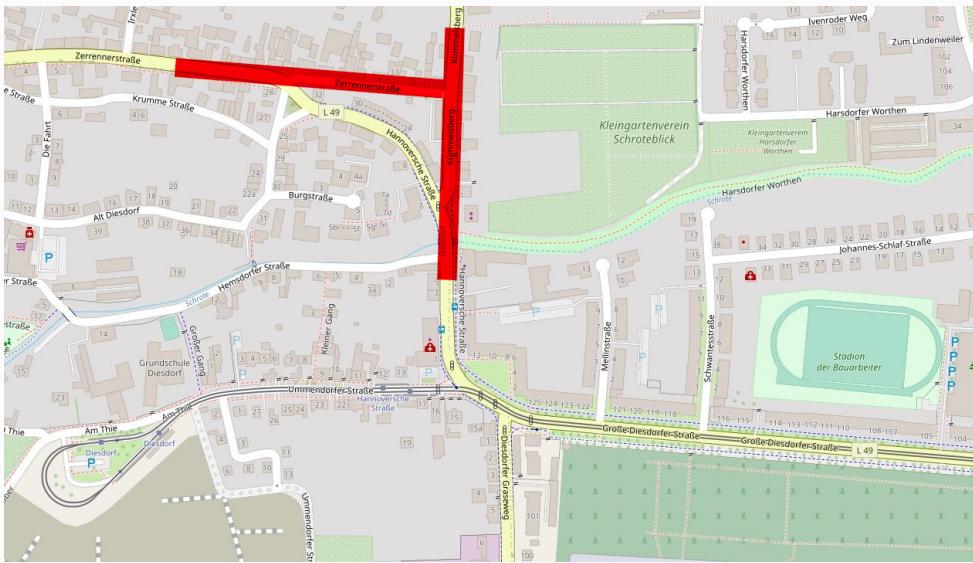


- ★ Moving the tramlines to the south
 - taking up less of the intersection

- ★ Variables of interest:
 - time spent in model
 - throughput



Experiment Description



★ Joining up the Hannoversche Straße with Kümmelsberg

★ Variables of interest:

- time spent in model
- throughput



Experiment Description

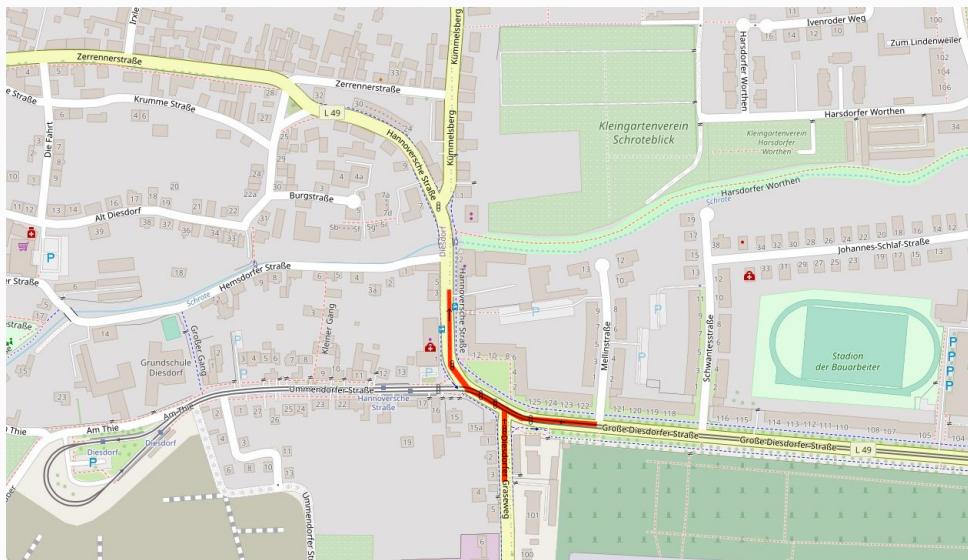


★ Changing up the traffic lights at the lower intersection

★ Variables of interest:
queue lengths, throughput



Experiment Description



- ★ Building an underpass for cars coming from Graseweg and Große Diesdorfer Straße

- ★ Variables of interest:
 - time spent in model
 - throughput



Experiment 1 Results: Normal Traffic



Time Spent in Model

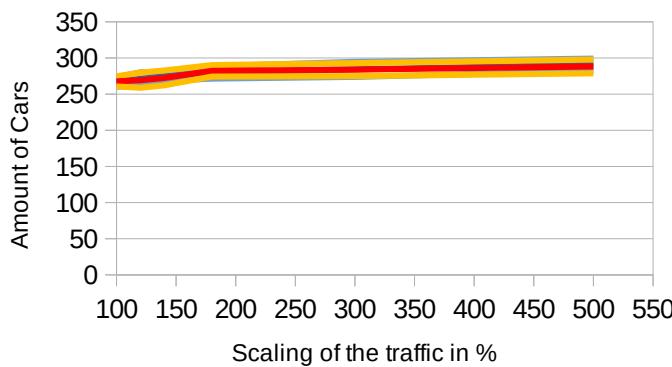
	LOWER	Mean	Upper
Time_North	-6.85	2.4	11.65
Time_South	-1.216	-0.464	0.288

→ No difference to the normal Model

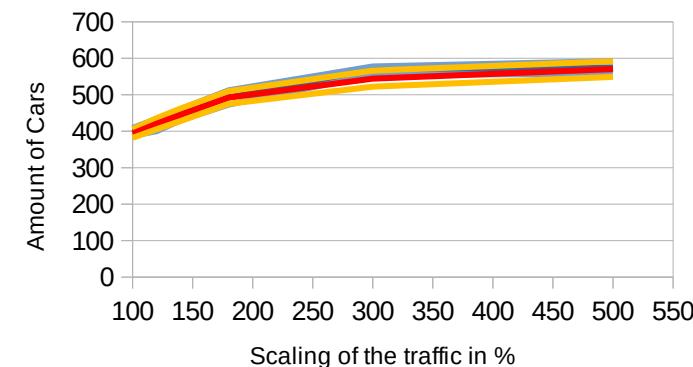


Experiment 1 Results: Scaling

Throughput of Diesdorfer



Throughput of Graseweg



→ The change has no effect on the model



Experiment 2 Results: Normal Traffic

Time Spent in Model



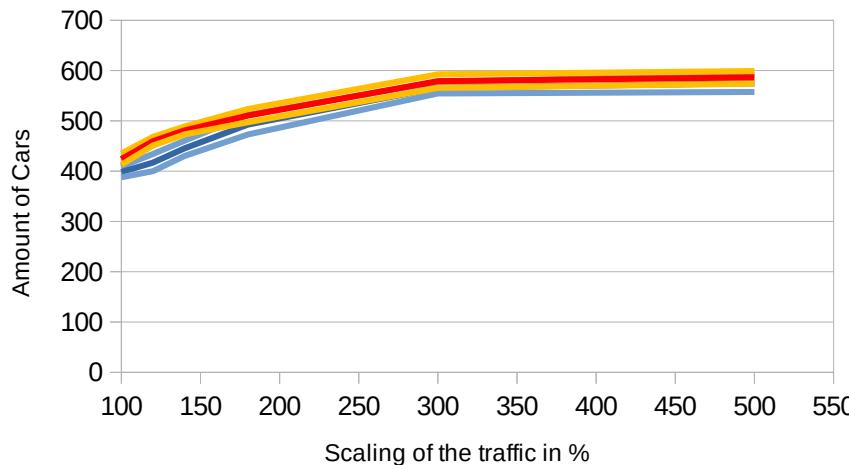
	LOWER	Mean	Upper
Time_North	11.479	20.606	29.732
Time_South	-63.248	-62.366	-61.485

- A decrease for the time needed to go north
- A great increase for the time needed to go south
(thats because the time in model is measured between the intersections)

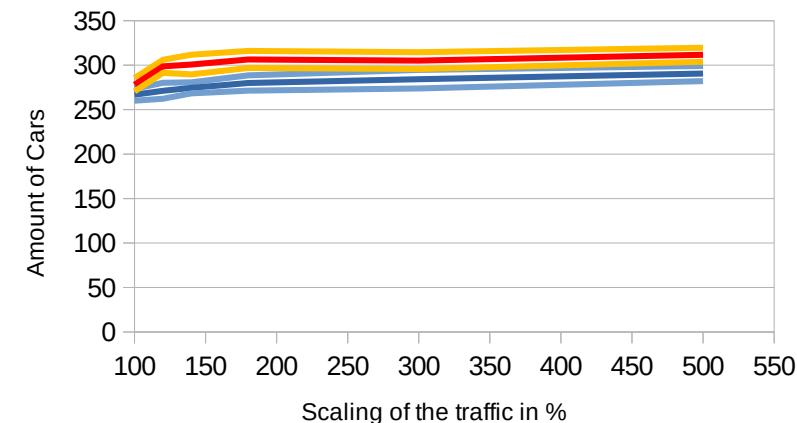


Experiment 2 Results: Scaling

Throughput of Diesdorfer Graseweg



Throughput of Große Diesdorfer Straße





Experiment 3 Results: Normal Traffic

Queue lengths Diesdorfer and Graseweg

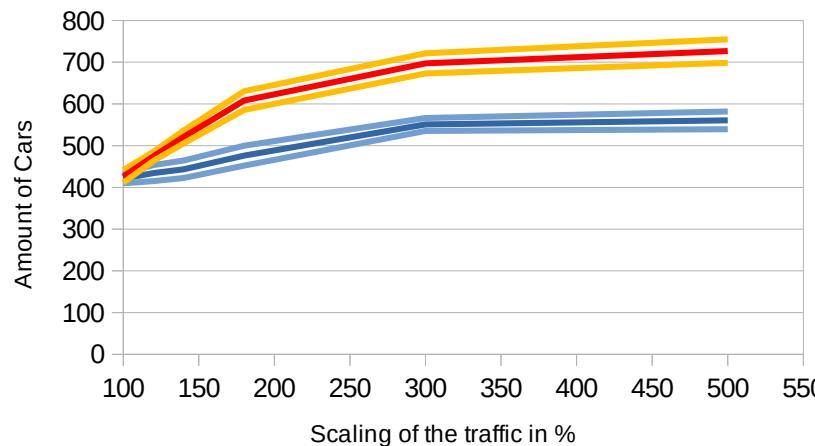
	LOWER	Mean	Upper
Queue_DGS	14.936	15.458	15.979
Queue_GDS	0.523	0.758	1.012

→ A decrease in both queue lengths

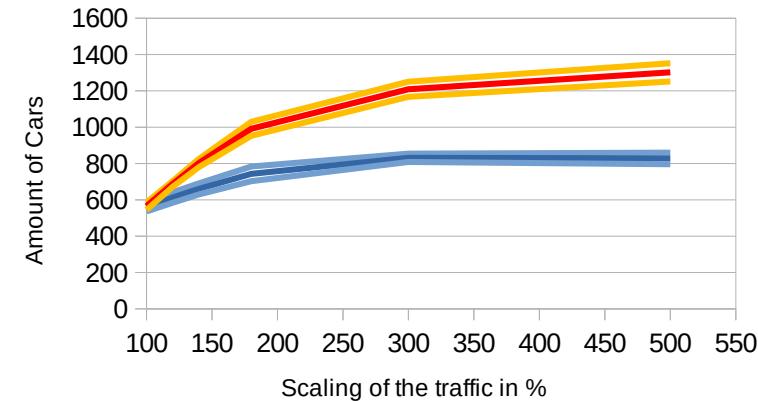


Experiment 3 Results: Scaling

Throughput of the Hannoversche Straße



Throughput of Kümmelsberg





Experiment 4 Results: Normal Traffic

Time Spent in Model

	LOWER	Mean	Upper
Time_North	-16.79	-7.589	1.611
Time_South	-0.92	-0.13	0.66

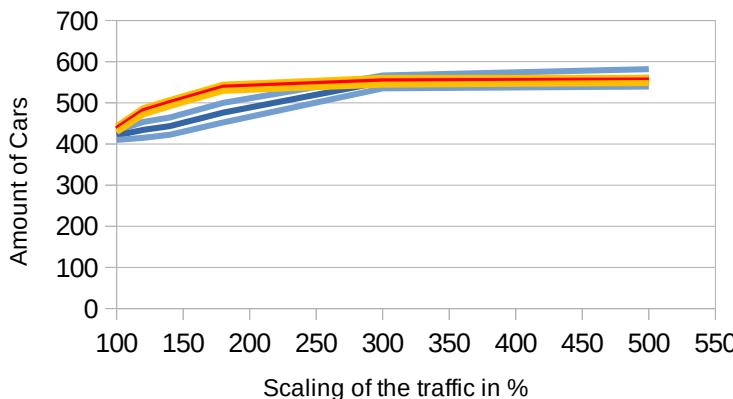


→ No difference to the normal model

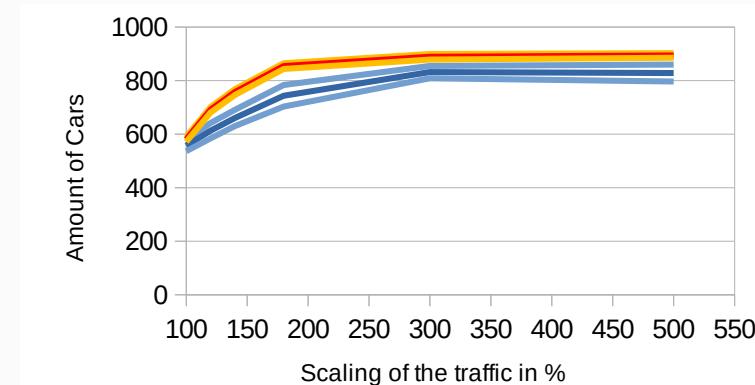


Experiment 4 Results: Scaling

Throughput of Hannoversche Straße



Throughput of Kümmelsberg





Recommendations

- ★ All experiments except the first one improve the throughput
- ★ Change of traffic lights yield the best result
 - it is also the cheapest one
- ★ Changed Kümmelsberg intersection has little effect on the throughput
 - improves the time spent in model
 - recommended together with a change of traffic lights

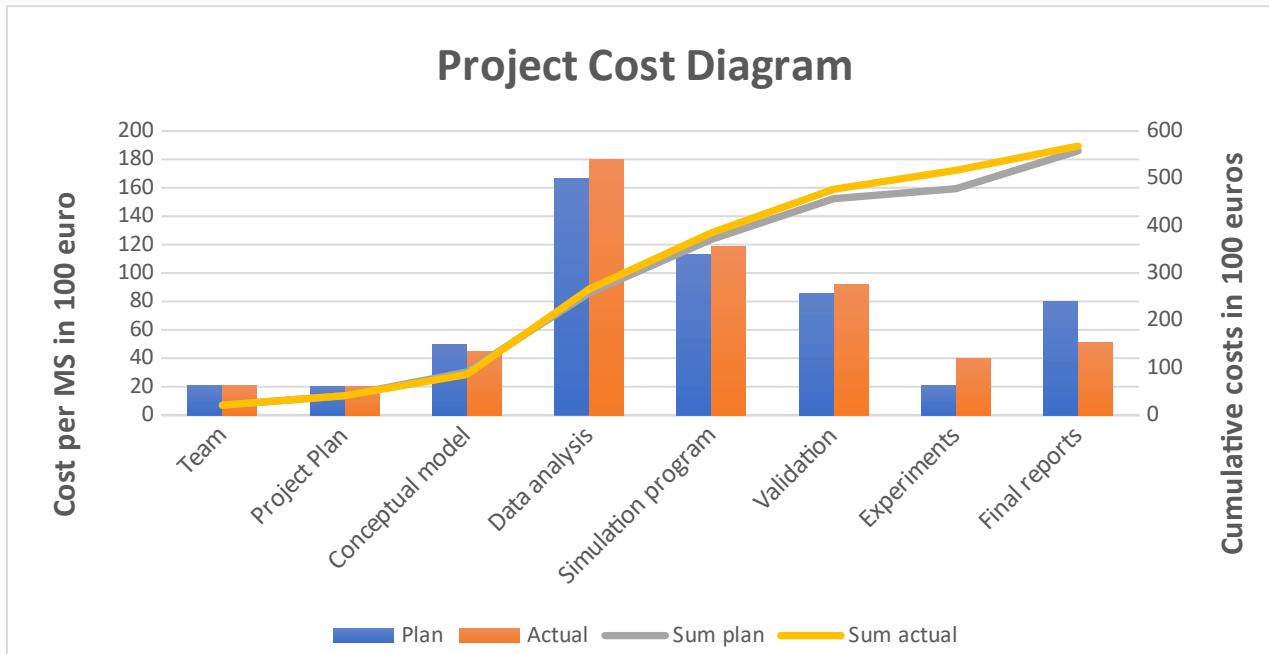


Problems encountered

- ★ Anylogic had some unexpected behaviour
- ★ The scaling took quite a lot of time
- ★ The experiments have changed twice during the project

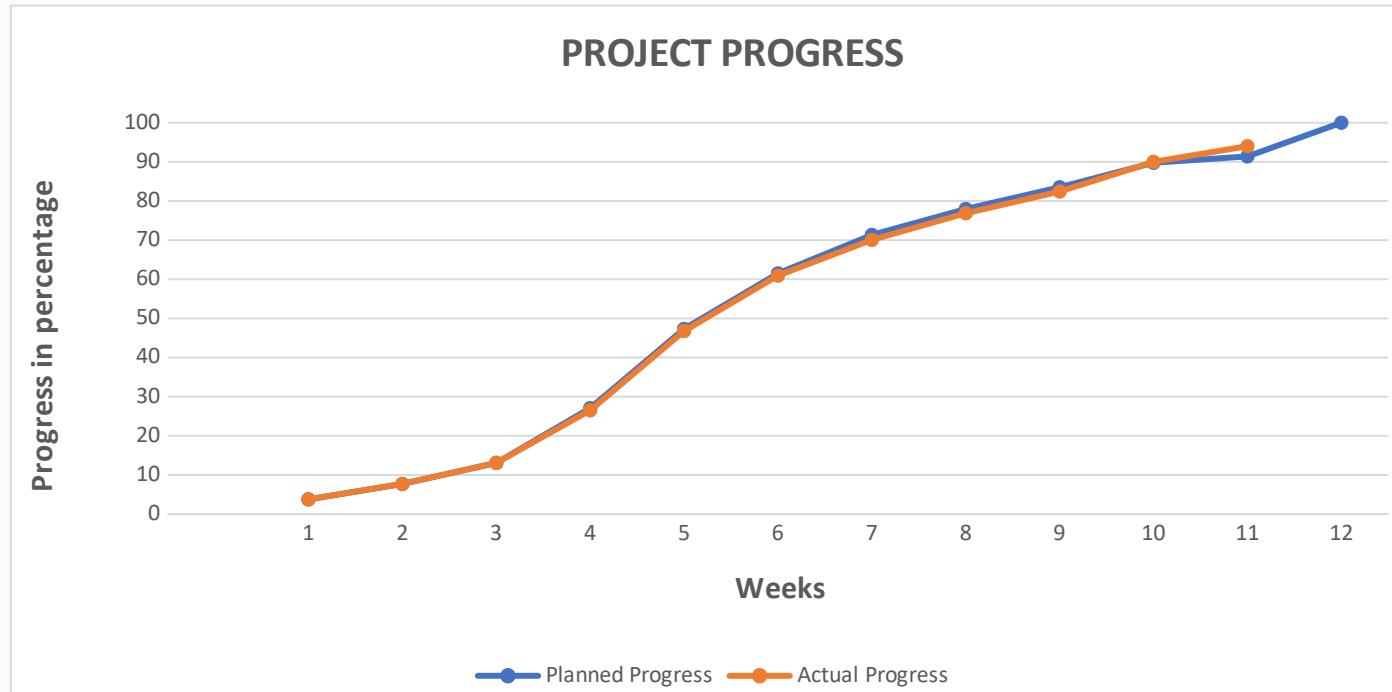


Project Cost





Project Progress





Lessons Learned

- ★ Experiments should be clearer from the beginning
- ★ Running and especially rerunning the experiments takes up a lot of time
→ plan more time for that



Thank You

Questions?