Inter Disciplinary Project
Simulation

OTTO VON GUERICKE
UNIVERSITÄT
MAGDEBURG

INF FAKULTÄT FÜR INFORMATIK

SIMGEMS

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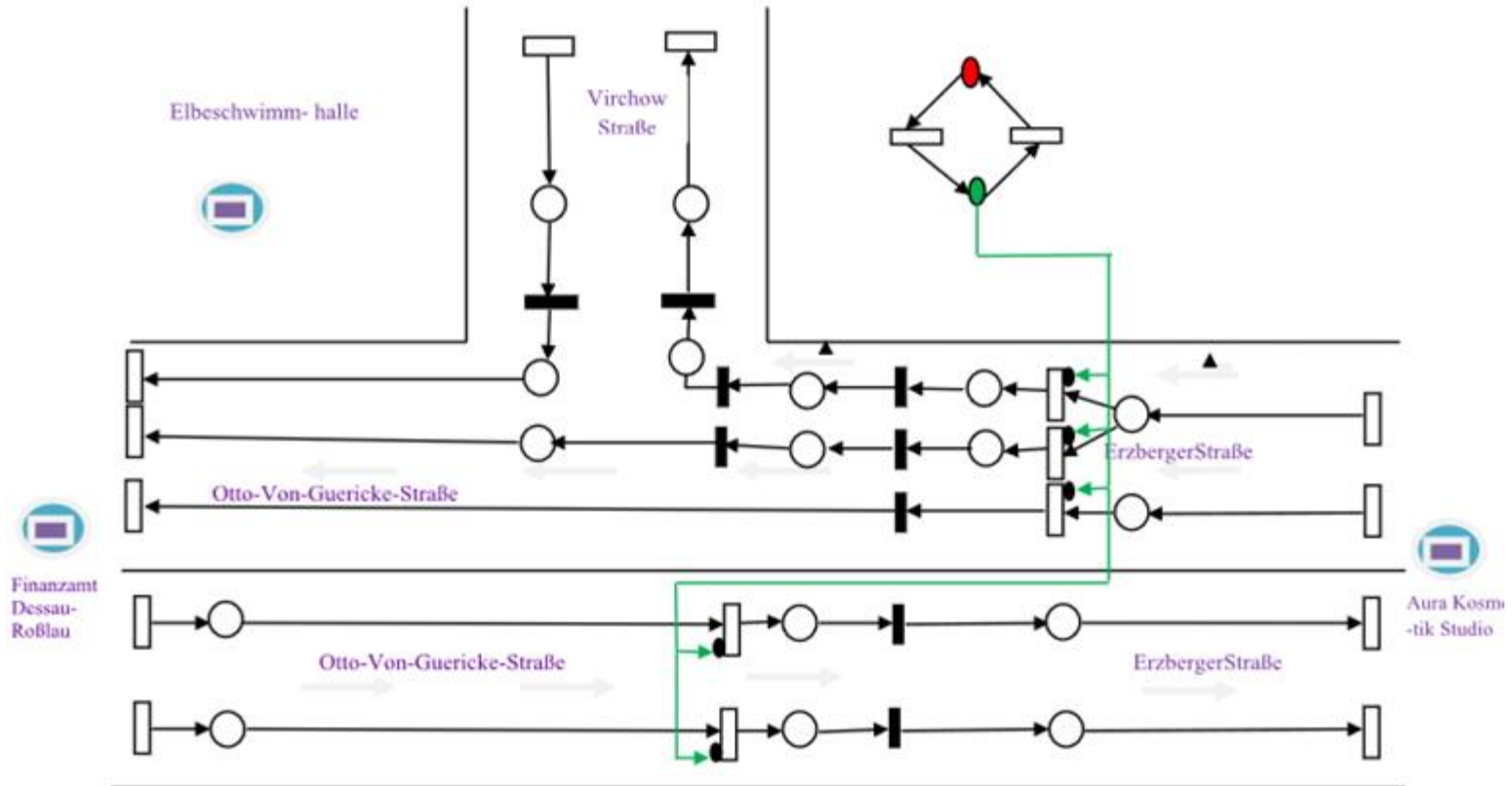
Project Goal
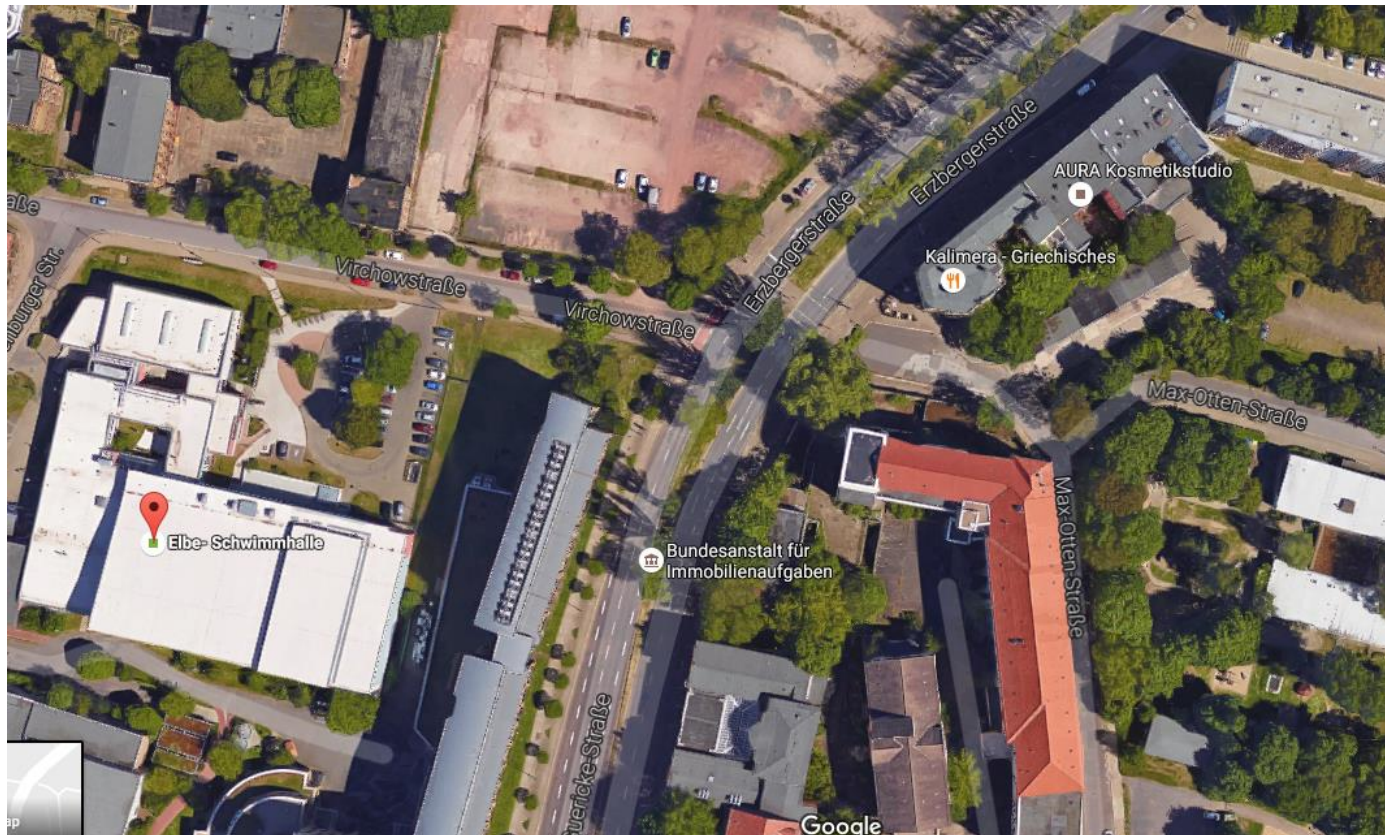
Elbe Schwimmhalle road

Agenda

- CONCEPTUAL MODEL
- DATA ANALYSIS
- SIMULATION PROGRAMMING
- VERIFICATION AND VALIDATION
- EXPERIMENTATION
- CONCLUSION

CONCEPTUAL DIAGRAM

DATA ANALYSIS

- Collected Data
- Estimated distribution function
- Estimated Parameters
- Tested data to check similarity between guessed data and real data

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- **COLLECTED DATA:**
  Queue length
  Inter arrival time
  Signal times

- **ESTIMATED DISTRIBUTION FUNCTION:**
  Lognormal distribution

- **ESTIMATED PARAMETERS:**

	Mean	Variance
Erzberger Strasse	0.5	0.298
Otto-Von Geuricke Strasse	0.5	0.3

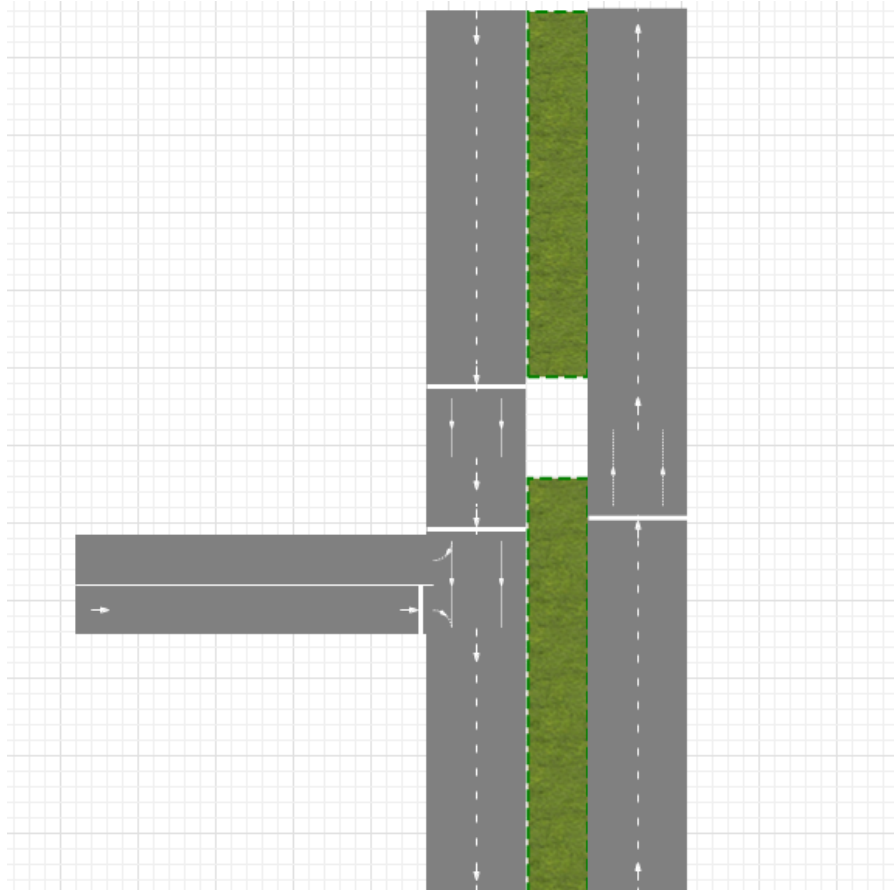- Chi square test to check the similarity between guessed and real data

SIMULATION PROGRAMMING

- Software used: Any Logic
- Data acquired from Data analysis
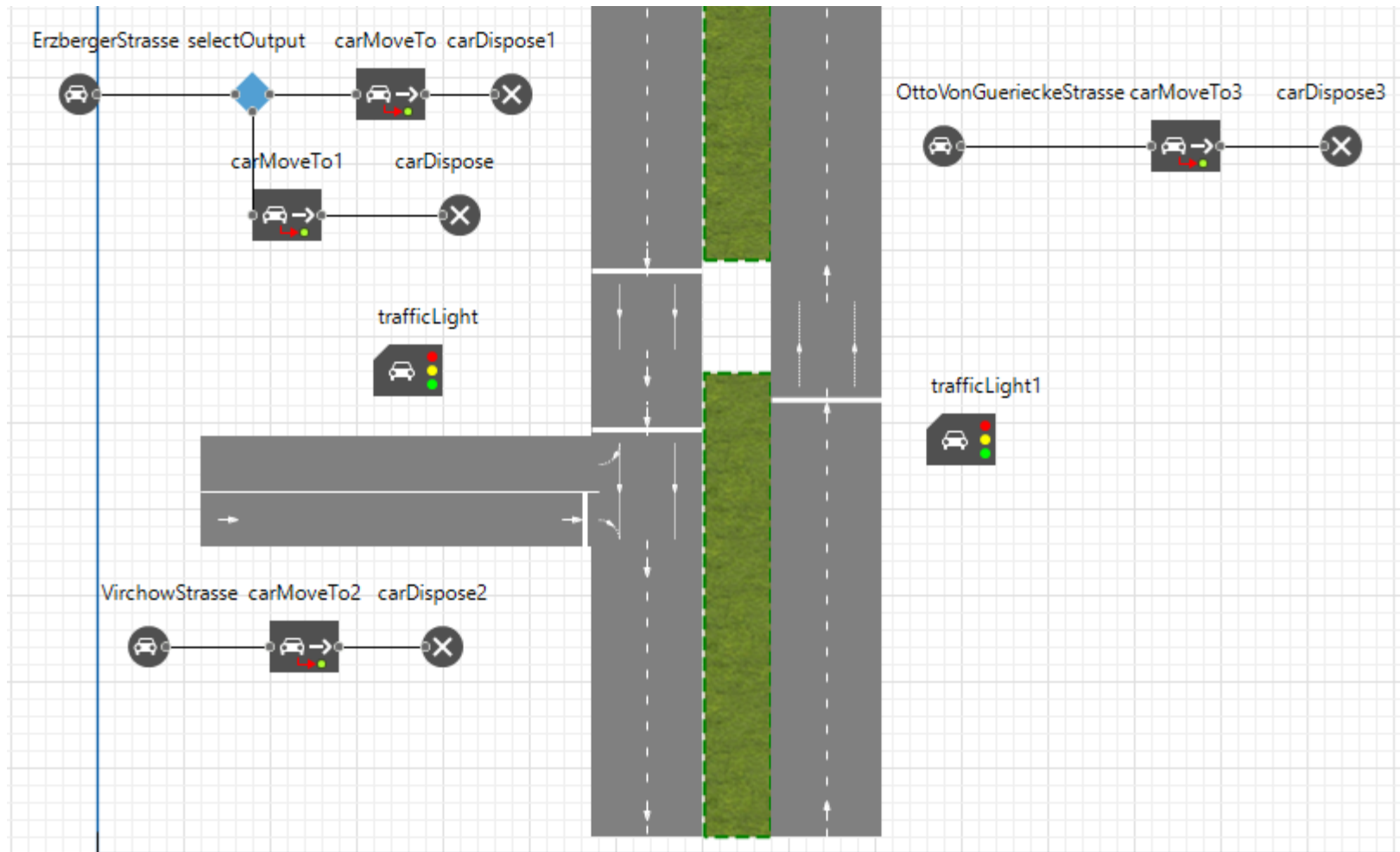- Design from Conceptual Model
- Implementation of the model

- **Design**

Road modeling in Any Logic

Implementation

VERIFICATION AND VALIDATION

Verification

- Comparing the conceptual model with its implementation
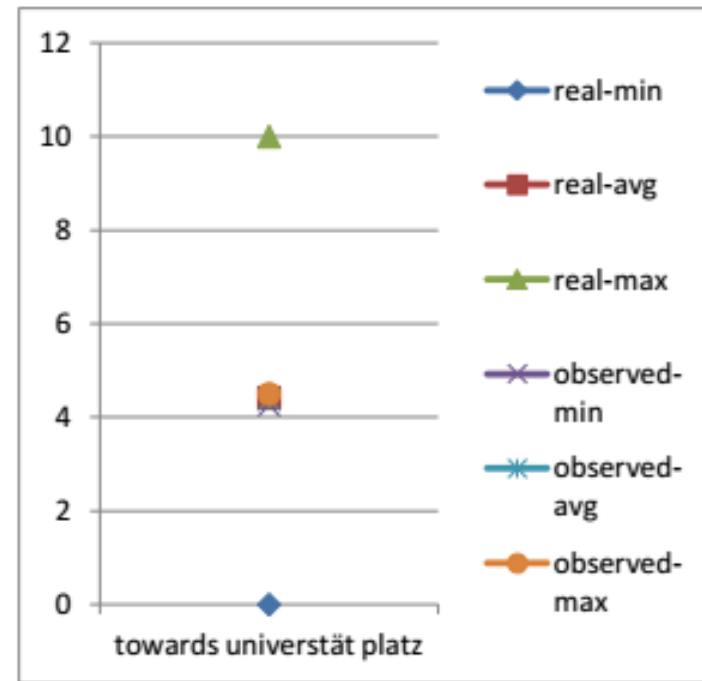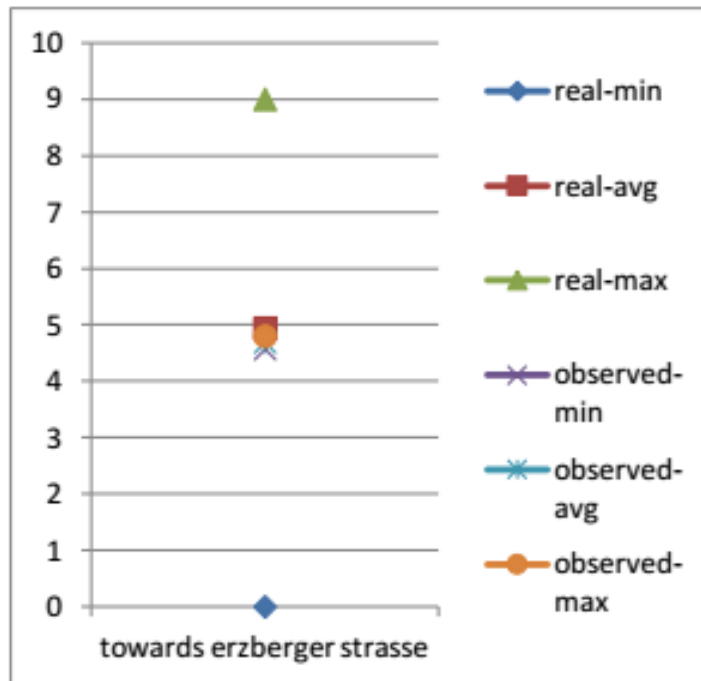- Checking the correctness of the model

Validation

- Building a model which reassembles the real field model
- Comparing output of the built model with the data collected in the real field model
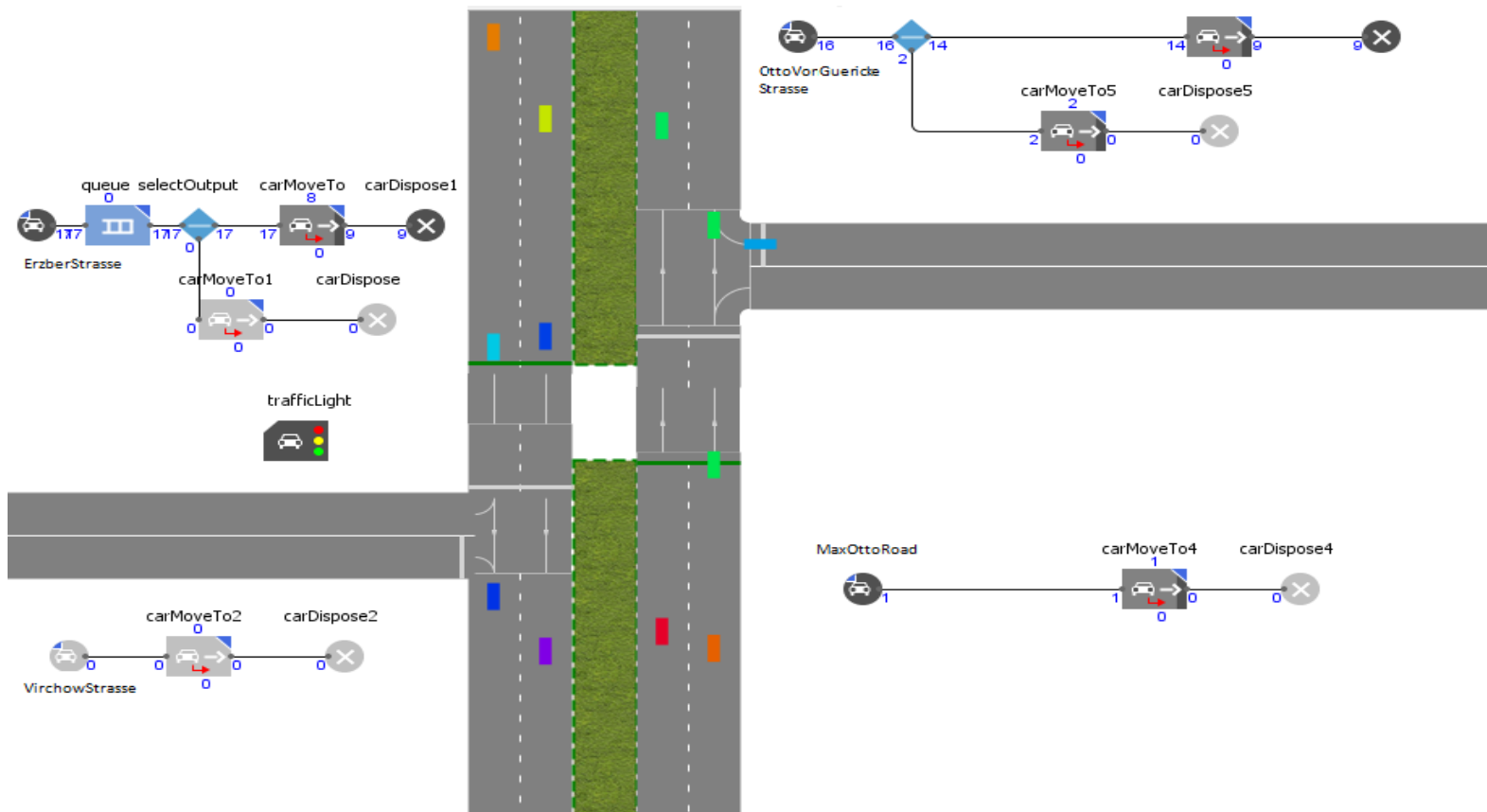
- **Comparison of implemented model and conceptual model**

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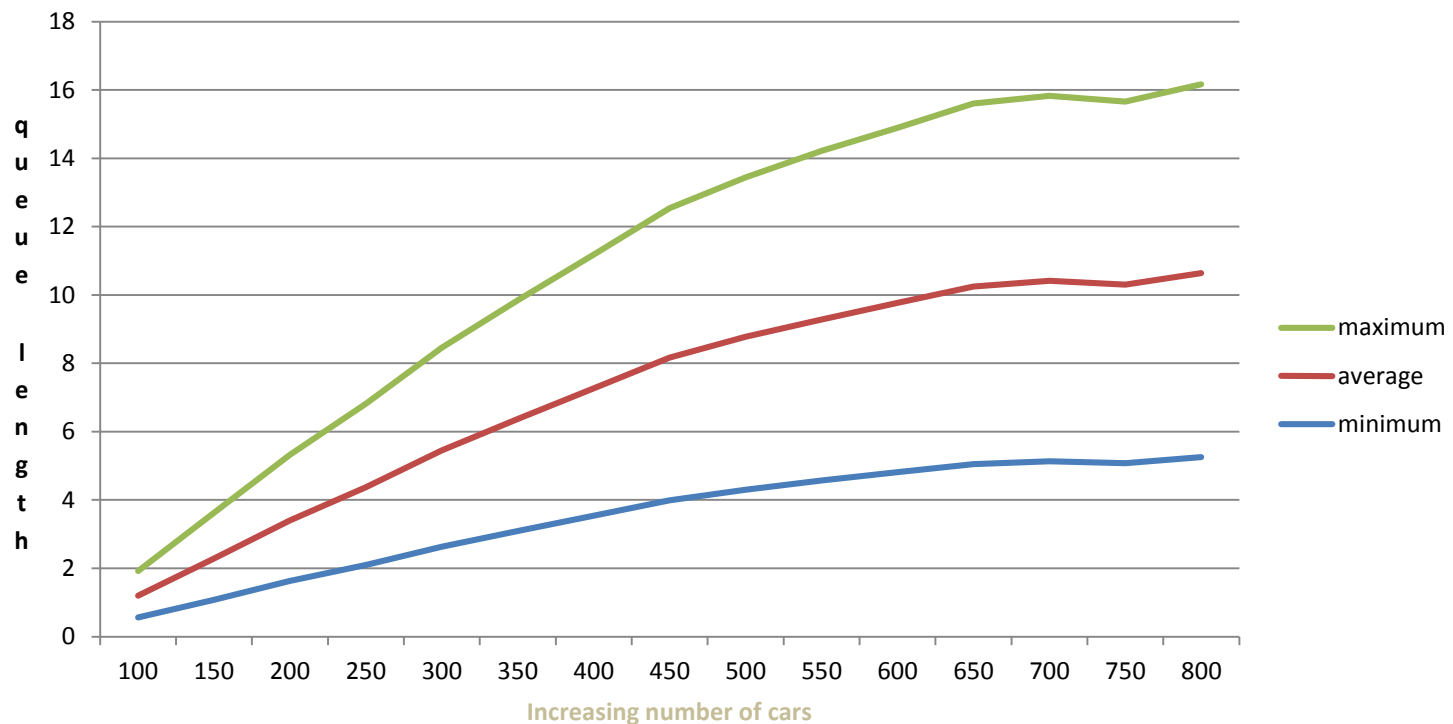FAKULTÄT FÜR
INFORMATIK
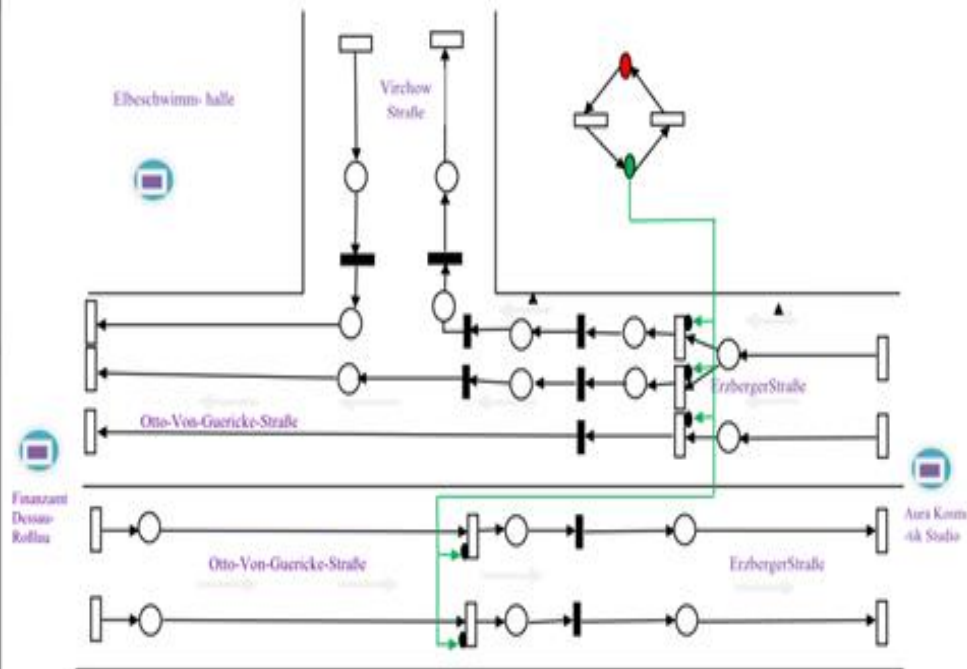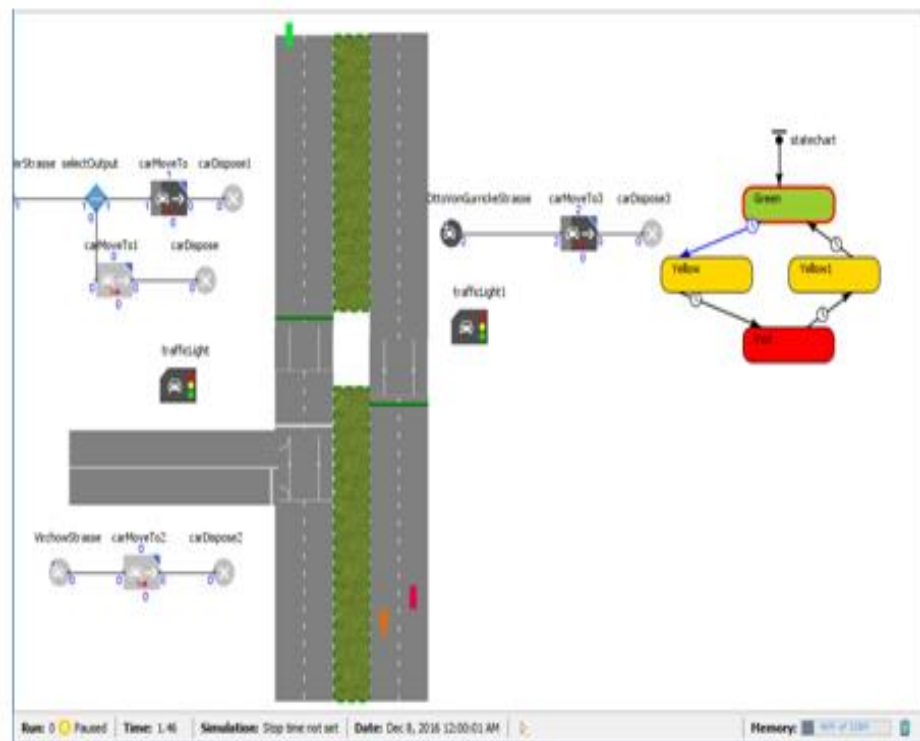
Validation

Confidence interval graphs of queue lengths of real and simulated model

EXPERIMENTS
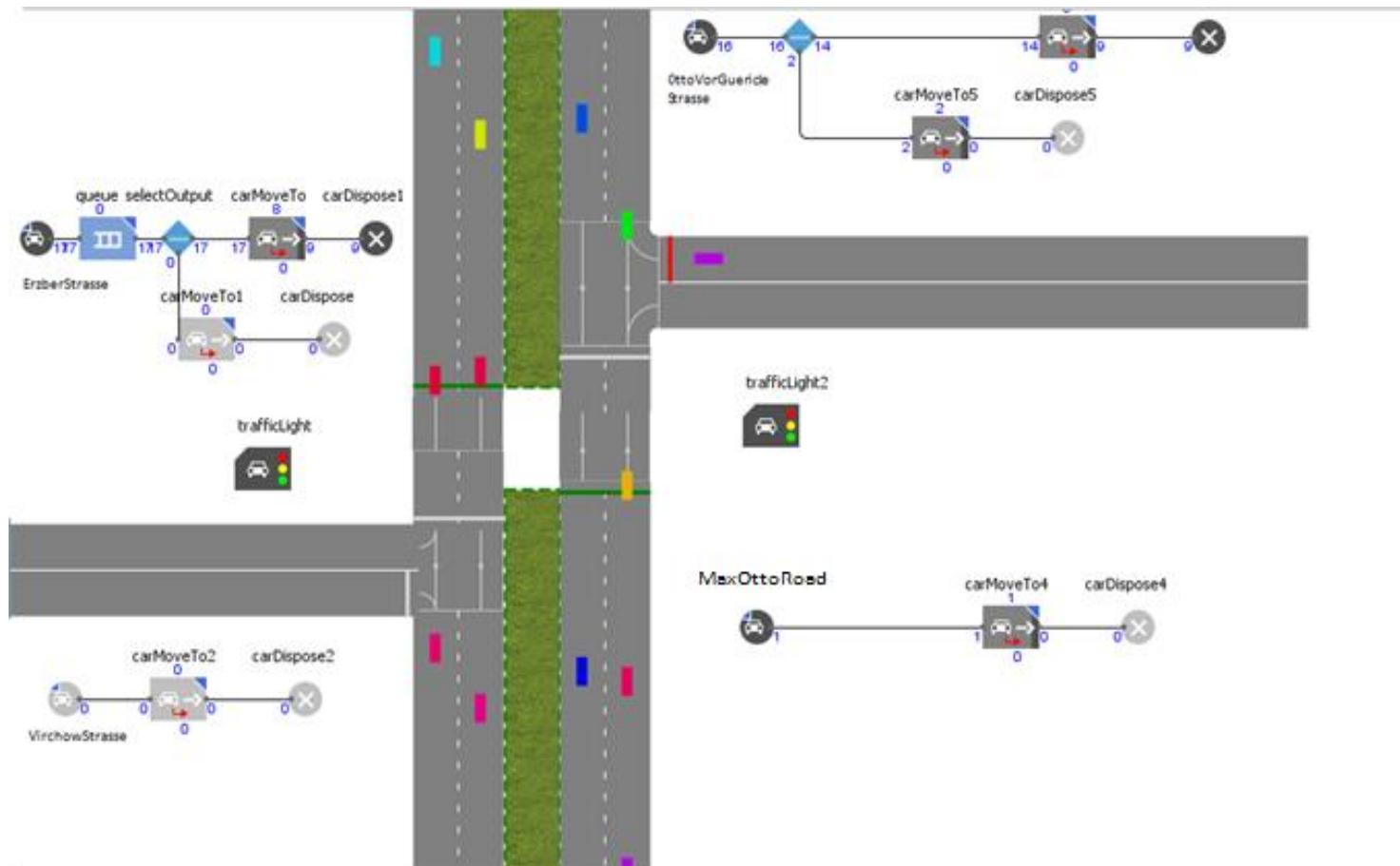
Experiment1: Adding additional road (MaxOttoStrasse)

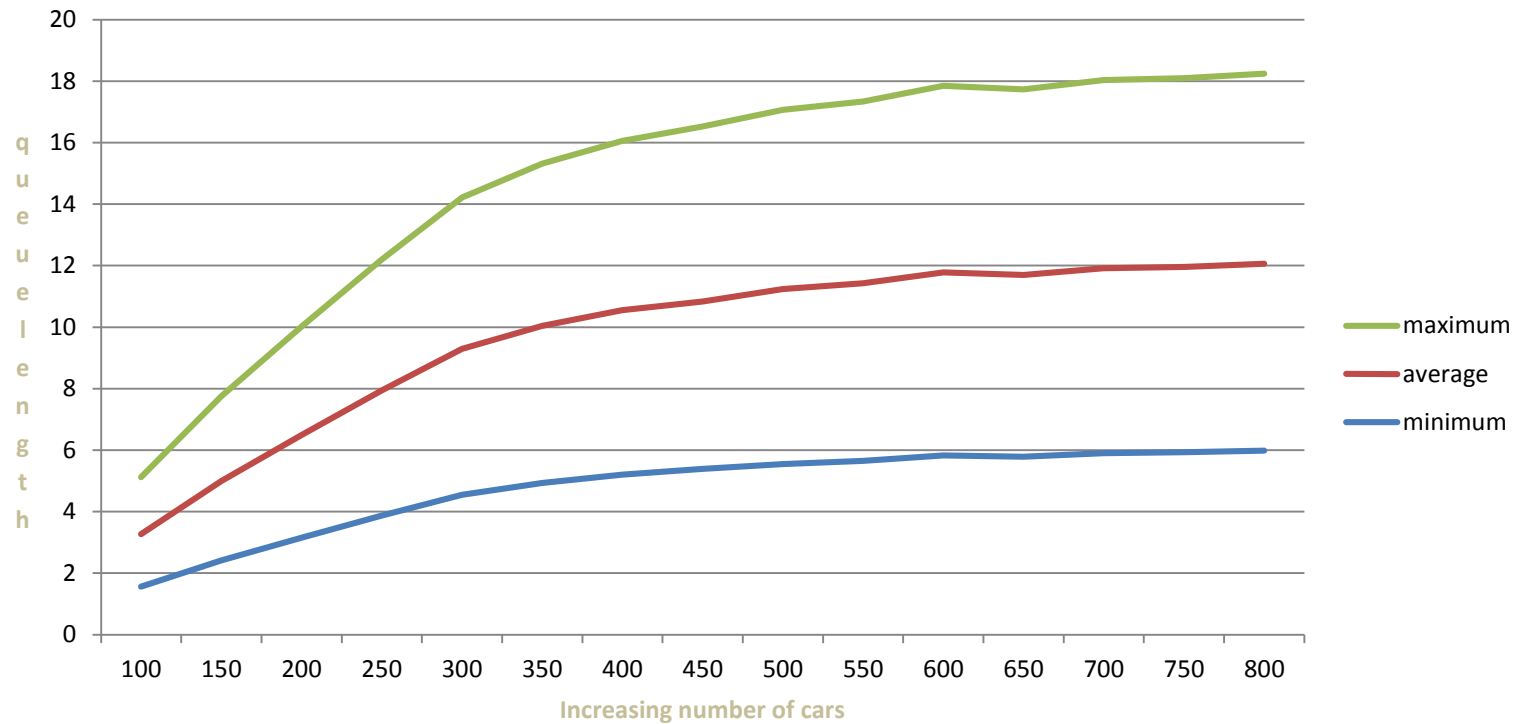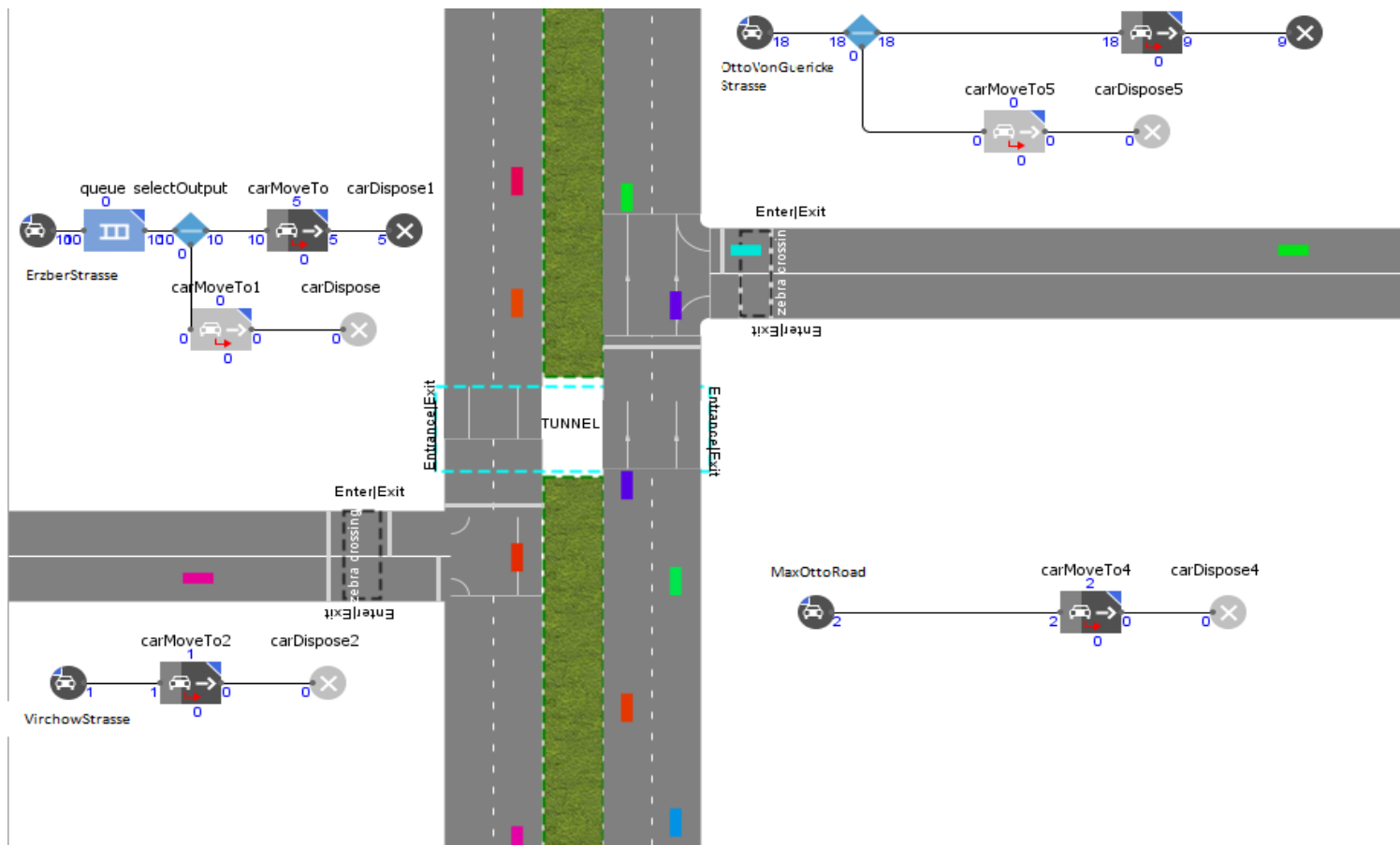- Observing queue lengths by increasing number of cars every hour.

Experiment2: Adding signal to additional road (MaxOttoStrasse)
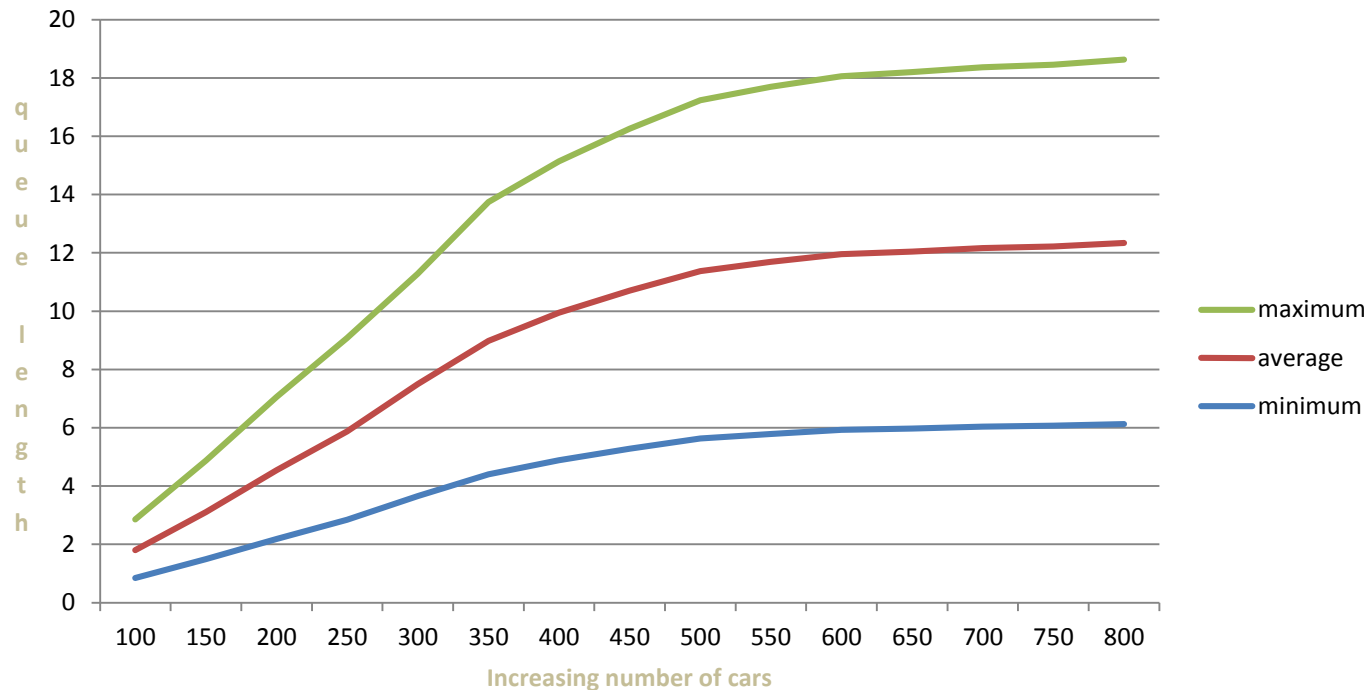
- Observing queue lengths by increasing number of cars every hour.

Experiment3: Adding tunnel, speed limits, zebra crossings to road network

- Observing queue lengths by increasing number of cars every hour.

CONCLUSION

- Observed decrease in queue length
- Improved safety because of the adding zebra crossings, speed limits
- Reduction in traffic is observed and ease of use for the people who use the additional road.

Thank you... ☺