

Welcome

Team Simulus

Aims Review

Motivation

Design

Collaboration

Future Work

Demonstration

Questions

Features -  
Map Editor

Features -  
Simulator

# 7CCSMGPR - Traffic Simulation Project

**Team Simulus**

King's College London

*<https://github.com/leorohr/simulus>*

27 March 2015

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- London congestion cost \$8.5bn in 2013, rising to \$14.5bn by 2030
- Road construction is expensive
- Simulation to the rescue!

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- **Must**

- Individual Vehicles
- Vehicle Entrance and Exit
- Vehicle Behaviour
- Statistics - Delay, Average Speed, Distance Travelled
- Traffic Management Policies - traffic signal timing, speed limit, etc

- **Should**

- Emergency Services
- User Maps (Map Editor)

- **Could**

- Save/Load User Maps
- External Map Source e.g. Google Maps

- **Won't**

- Pre-existing Traffic Simulators or Libraries

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- **Discrete Prototype**

- Logical simplicity of this model was favourable
- Limitation: Discrete space
- Inhibited the ability to realistically represent the real world

- **Continuous Cellular Automata**

- Using discrete time and continuous space
- Hybrid approach, more realistic traffic simulation
- Supported by additional map editor

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- **Collaboration**
  - Utilising Github facility
- **Flexible Roles**
- **Working Policy**
  - Cooperation
  - Responsibility
  - Self-organisation

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- System Architecture(MVC) not fully adhered to
- More thorough testing
- Road expansion

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- **Use case scenarios**

- Town planning
- Business cases i.e. road extensions to connect two villages
- Ease of congestion and traffic flow

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- Create road networks
- Import and export as 2D array (represented as XML) for simulation
- Map validation
- Flood fill
- Intuitive Click and Drag controls

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- Different types of vehicles
- Different individual driving behaviours
- Overtaking vehicles
- Emergent phenomena
- Intersections
- Road Blockages
- Traffic phasing control