Distributed Systems – Semester Project

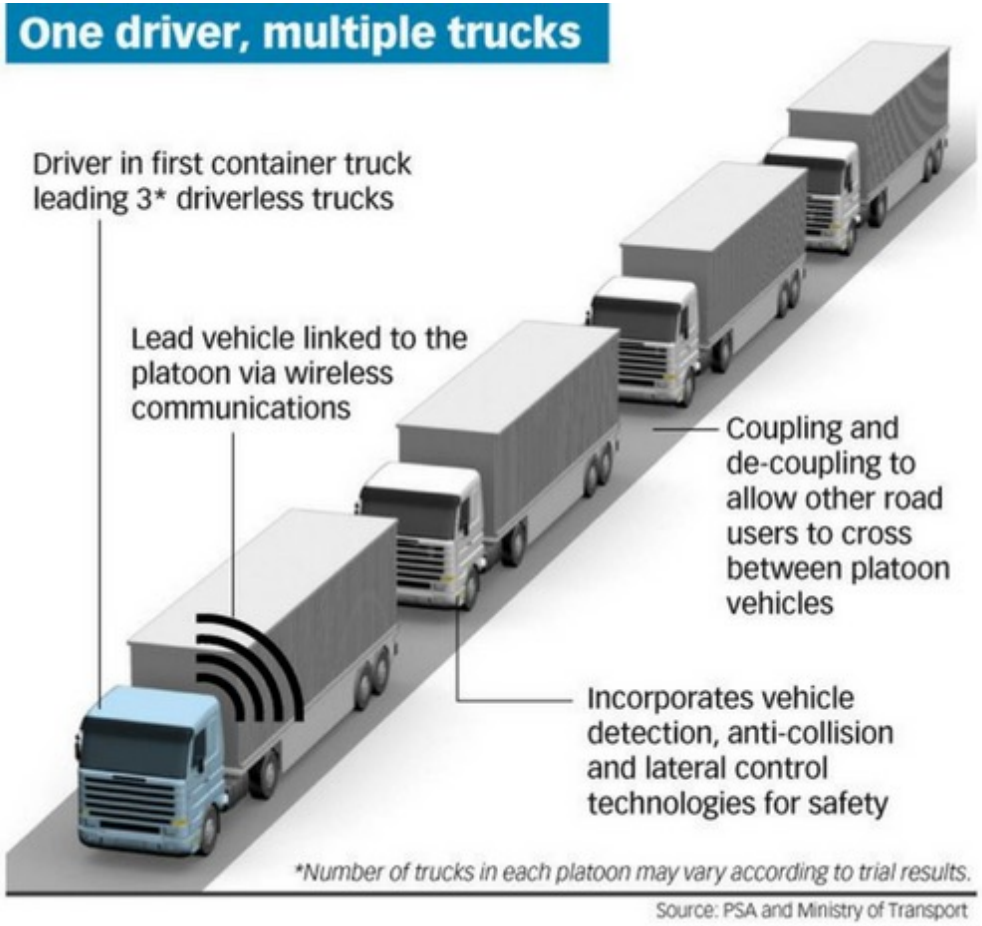
Subheadline

- Stefan Henkler **E-Mail: stefan.henkler@hshl.de**

Semester project

Use Case

- Consider a truck platooning scenario



https://www.labroots.com/trending/chemistry-and-physics/7405/band-semi-trailers-truck-platooning

Truck Platooning Use Case

Tasks

1. Identify which data/signal/events are required for the interaction / communication between the trucks
   - Specify an appropriate protocol
   - Use State Machines for the model-based specification
2. Identify the relevant control behaviour for the trucks
   - How can the distance to the precedence truck be guaranteed
   - What happen in cases of a e.g. communication failure - > is your system robust / still stable?
   - Use State Machines (and/or Activity Diagrams) for the model-based specification
3. Map the model-based specification to code as a concurrent program by using pthreads and openmp
   1. Implement the “pure” functional behaviour
   2. Refine the behaviour to a pthread / openmp implementation

Organizational stuff

- Teamwork
  - 4+/-1 members
  - Send informaiton to: stefan.henkler@hshl.de, subject: [DPS-Team] <Team name>, content. Name of all team members, team members in cc
    - Till November 1, eob – otherwise give me input in cases of problems in building a team
  - Create a github account for collaborative team work
- Milestone 1
  - First version of tasks 1 and 2 and teambuilding
  - Deadline November 6 2023, eob
  - Use known modeling techniques
  - Use git