Progress Summary – Milestone 2

Overall Progress:

Due to our teamwork we have achieved and created and a working prototype of our simulation.

We successfully established a connection to SUMO using TraaS and TraCI and implemented core elements such as vehicles, traffic lights and the map visualization.

Through the GUI, the user is able to view and control the real-life simulation at will.

To assist the user with the interaction of the simulation , we have created a User Guide Draft, which can be followed easily step by step.

Completed Features:

- ### SUMO Connection
  We have crerated a stable connection to SUMO by using TraaS.
  Therefore the simulation can be used at will.

- ### Vehicles
  Vehicles can be implemented and controlled in the simualtion.
  Each vehicle has unique attributes such as:

  (1) Each vehicle has its own unique ID
  (2) The speed can also be seen for each vehicle individually
  (3) A vehicle is created every 5 seconds

- ### Traffic Lights
  Traffic lights are implemented into the simulation.
  The prototype is able to:

  (1) Retrieve current light states
  (2) Control the states oft the traffic lights
  (3) The states of the traffic lights change within a time period

- **Map Visualization**
  We have created a graphical map visualization of surrounding area of our university.
  Everything is simulated in real time in our road network

- **User Guide Draft**
  Through the User Guide Draft the user is able follow every necessary step to start the simulation by his own.

Next Steps:

(1) GUI: The GUI works right now but is only a prototype with core functions, we have planned to refine and work further on the GUIs improvement
(2) Controlling the speed and the implementation of vehicles
(3) Expanding the visual map and road network
(4) Finalizing the project at the end

Challenges:

- There wasnt enough resources to program the required exercises
- We had many errors where the simulation has closed itself to early, while TraCI still tried to execute commands
- Working with TraCI-Domain, especially with the initialization oft he TrafficLightDomain
- Connecting and creating the road network with Netedit

Team Roles:

- **SUMO Connection:** Jonas
- **Vehicles:** Jonas
- **Traffic Lights:** David
- **GUI & Visulaization:** Ali and Hamza
- **Documentation and Stress Test:** Younes

Conclusion:

We successfully implemented all requirements and goals of the second Milestone.

Our current prototype sets the foundation to complete our project for the final Milestone.

GitHub Link: https://github.com/JonasR204/Java-Project