**Project description:**

A robotized vehicle based on the LEGO Mindstorm EV3 educational kit has to be realized. The project has to be documented in SysML (System Modelling Language) with the Papyrus software. The SysML model should contain the requirements of the system, a functional architecture and the physical architecture. The movement of the robot should be simulated and the control algorithms should be prototyped based on the SysML model. The required mechanical parameters should be obtained out of the CAD program. The parameters of the sensor and actuators should be determined through a measurement. By the use of the Simulink support package the control algorithms of the robotized vehicle should be realized and implemented on the robotized vehicle. Finally, the performance of the system should be demonstrated on a test track.

**The Project**

**SysML in Papyrus**

- requirements
- functional architecture
- physical architecture
- assembly architecture
- model will be updated during the development process

**simulation**

- movement simulation with Simulink Simscape

**mechanical engineering**

- CAD
- build up a prototype
- modeling of parts

**software development**

- programming the control algorithms by using the Simulink Lego support package