Final Report “Design of Embedded Systems” (DES)

The final report for the Mars Rover part of the course DES should contain the topics described below.

Description of the work on the Mars Rover
Describe the details of the main development activities:

- Listing of requirements with priorities.
- Listing of the identified risks.
- Deployment with distribution of sensors, actuators and software components over NXT bricks; give both the own proposal and the chosen deployment, including motivation.
- Domain Specific Language (DSL):
  - Describe the concrete syntax of the DSL; what is the main idea, what is the meaning of the language?
  - Describe the instance(s) of the DSL that are used for the Mars Rover, explain the main idea.
  - Describe the main structure of the generated code.
- Realization
  - Describe the order in which features of the Mars Rover have been implemented.
  - Describe the final result: what has been implemented exactly, which requirements are satisfied, which requirements are not satisfied and explain why not.

Evaluation of the work on the Mars Rover
Evaluate the work done and mention own observations. A list of relevant questions:

- What were the most important steps during the development; what was difficult, what was easy, was the order of the steps suitable?
- How often did you change the DSL, is there a large difference with the DSL for the small Lego NXT Rover, what where the reasons for changes?
- Looking back at your DSL and code generation; what would you do differently, what could be improved (e.g., if you would have more time)?
- How flexible and extendable is your solution? For instance, how easy is it to add sensors, actuators, to move them to another NXT brick, or to add new functionality?
- Evaluate the development process. Especially, discuss the use of a DSL for modeling and code generation. What are advantages and disadvantages, what was difficult, what was easy?
- What are the observations about the technology used, such as Eclipse, LeJOS, Xtext, and Xtend?
- What are general lessons learned?

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