bSecure – Computerized building security system

Introduction to Software Engineering
Department of Computer Science
Technion – Israel Institute of Technology

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1. Goals
In this phase you are to produce the high level design of the system. The high level design document will include the following sections:

- System level use cases, including use case specifications.
- System deployment model
- Software Architecture Description
- Analysis classes

You should prepare the sections as shown in the RoboLib example project. You should also include the requirements document as part of your submission. This part is not graded but is used to check that your use-case model is consistent with the requirements.

2. Responsibility Distribution
The tasks should be distributed uniformly among the members of the group. You are required to describe the responsibility of each member in executing the phase. Define the role and actual work of each member, in the level of functional responsibility: each member is responsible for some modules and/or functionality and perhaps some development task, such as document integration, internal reviews, etc of the system.

3. Submission
You should submit a high level design document containing all the sections described in the project goals. The requirements document you hand in must also include a filled out cross reference table to indicate consistency with the previous submission. The document (including previous phases) should be printed and submitted as one coherent document containing multiple sections, and also submitted electronically in pdf format via the course website. The submission should also include a cover page including the group name, and the names and ids of all group members, and also the number of cell to return the checked exercise to. You should use the RoboLib documents as a reference for the format of the submission (diagrams, tables etc.).
Please inform Roy (royl@cs) and Pavel (pg@cs) of any problem, and in particular Miluim, as soon as such issues arise.
3.1 System level use-case model
The section should include the following components:

- System level use-case diagram
- A table of stakeholders and their interests
- A table of system level use-cases and their description
- A textual specification for each use-case that includes:
  - Use-case name and goal
  - Use-case stakeholders and their interests
  - Pre and post conditions
  - Trigger event
  - Main Success Scenario
  - Alternatives and exceptions
  - Traceability to functional and other requirements

3.2 Cross reference table
Extend the requirement table in the requirements document to include forward traceability columns, which indicate for each relevant requirement, the use case that implements it.

3.3 System deployment model
The section should include the following artifacts:

- System Deployment Diagram
- Hardware Configuration Items (HWCI) table:
  - Name
  - Description
  - Reference to requirements
- Computer Software Configuration Items (CSCI) table:
  - Name
  - Description
  - Reference to requirements
- Interfaces table
  - Connected items
  - Contents
  - Medium / Protocol
  - Reference to requirements

3.4 Software Architecture Description(s)
You should provide this section for each software development product you must develop. Each such section should include the following artifacts:

- Component Diagram
- Component / Interface Description table
  - Name
  - Role
  - Interfaces
    - Kind (required / provided)
    - Name
    - Description
Also, this document should include software architecture diagram (see the last diagram in the RoboLib SAD document for reference.

### 3.5 Analysis classes section(s)

You may provide one or more (this is up to you) analysis classes sections. Each such section should include the following artifacts:

- Class Diagram
- Class Description Table containing
  - Class name
  - Class members, their descriptions and reference to the requirements
  - Traceability to requirements

The class model you provide should be analysis level classes, which is a high level view of the classes in the system. That is, you should not include all classes you may use in your implementation (for example GUI details such as Label, TextField etc.). However you are required to include in your class model every class that is clearly derived from the project requirements.

Good luck!