CENG350 Software Engineering, Spring 2023-2024
SRS Outline v1.0 for FarmBot

For further explanation, please, turn to the referred clauses of IEEE 29148-2018, the highlighted and commented version; pay attention to the comments. Related clauses are indicated in italic in the outline below.

The outline format is based on *Figure 8* in *Clause 8.5.2*.

Title Page *(Clause 9.2.1)*
Table of Contents *(Clause 9.2.2)*
List of Figures *(Clause 9.2.2)*
List of Tables (if any) *(Clause 9.2.2)*
Revision History *(Clause 9.2.1)*

1. Introduction *(Clause 9.6.1)*
    - 1.1. Purpose of the System *(Clause 9.6.2, 9.5.2, 9.4.2)*
    - 1.2. Scope *(Clause 9.6.3, 9.5.3, 9.4.3)*
    - 1.3. System Overview
        - 1.3.1. System Perspective *(Clauses 9.6.4, 9.5.4.1)*

            Context diagram and the explanations *of context go here. Plus, other content as appropriate. This subsection (namely 1.3.1) should be a summary; defer technical details to section 3.*

            - 1.3.1.1. System Interfaces *(Clause 9.6.4.1)*
            - 1.3.1.2. User Interfaces *(Clause 9.6.4.2)*
            - 1.3.1.3. Hardware Interfaces *(Clause 9.6.4.3)*
            - 1.3.1.4. Software Interfaces *(Clause 9.6.4.4)*
            - 1.3.1.5. Communication Interfaces *(Clause 9.6.4.5)*
            - 1.3.1.6. Memory Constraints *(Clause 9.6.4.6)*
            - 1.3.1.7. Operations *(Clause 9.6.4.7)*
        - 1.3.2. System Functions *(Clauses 9.6.5, 9.5.4.2)*
        - 1.3.3. Stakeholder Characteristics *(Clauses 9.6.6, 9.5.4.3, 9.4.5)*
        - 1.3.4. Limitations *(Clause 9.6.7)*
    - 1.4. Definitions (including acronyms and abbreviations) *(Clauses 9.2.3* and *9.2.5)*

2. References *(Clause 9.2.4)*

3. Specific Requirements *(Clause 9.6.10)*
    - 3.1. External Interfaces *(Clause 9.6.11, 9.5.8)*

        External Interfaces Class Diagram and its explanations *go here. Plus, other content as appropriate.*
    - 3.2. Functions *(Clause 9.6.12, 9.5.5, 9.5.10)*

        Use-case diagram *goes here;* ***detailed use-case descriptions in a reasonable template*** *follow. You are expected to have* ***about 10 use cases covering major system functionality.*** *Have some associations in your use-case diagram****,*** *e.g. include, extend, specialization. Choose three most complicated use cases. Construct three diagrams* ***(one sequence diagram, one activity diagram, and one state diagram)*** *to elaborate on these three use cases. Plus, other content as appropriate.*

3.3. Logical Database Requirements *(Clause 9.6.15)*

*Key data objects (persistent or not) and their major attributes. Draw the **Class Diagram** with associations. A class dictionary can be omitted, provided that the naming is understandable.*

3.4. Design Constraints *(Clause 9.6.16)*

Specify constraints on the system design imposed by external factors, such as official standards, regulatory requirements, or organizational/managerial limitations.

3.5. System Attributes *(Clause 9.6.18)*

Important quality attributes (Usability (Clause 9.6.13, 9.5.6), Performance (Clause 9.6.14, 9.5.7), Dependability properties, Maintainability, and so on) in the order of priority with associated requirements.

3.6. Supporting Information *(Clause 9.6.20)*

4. Suggestions to Improve the Existing System

4.1. System Perspective *(Clauses 9.6.4, 9.5.4.1)*

***Context diagram and explanations** of context go here for suggestions to improve the existing system. Plus, other content as appropriate.*

4.2. External Interfaces *(Clause 9.6.11, 9.5.8)*

***External Interfaces Class Diagram and its explanations** go here for suggestions to improve the existing system. Plus, other content as appropriate.*

4.3. Functions *(Clause 9.6.12, 9.5.5, 9.5.10)*

***Use-case diagram** for suggestions to improve the existing system goes here; **detailed use-case descriptions in a reasonable template** follow. You are expected to have **about 4 use cases covering suggestions to improve the existing system.** Have some associations in your use-case diagram**,** e.g. include, extend, specialization. Choose three most complicated use cases. Construct three diagrams **(one sequence diagram, one activity diagram, and one state diagram)** to elaborate on these three use cases. Plus, other content as appropriate.*

4.4. Logical Database Requirements *(Clause 9.6.15)*

*Key data objects (persistent or not) and their major attributes for suggestions to improve the existing system. Draw the **Class Diagram** with associations. A class dictionary can be omitted, provided that the naming is understandable.*

4.5. Design Constraints *(Clause 9.6.16)*

Specify constraints on the system design imposed by external factors, such as official standards, regulatory requirements, or organizational/managerial limitations for suggestions to improve the existing system.

4.6. System Attributes *(Clause 9.6.18)*

Important quality attributes (Usability (Clause 9.6.13, 9.5.6), Performance (Clause 9.6.14, 9.5.7), Dependability properties, Maintainability, and so on) in the order of priority with associated requirements for the improved system.

4.7. Supporting Information *(Clause 9.6.20)*

5. SysML Diagrams for Existing System and Suggestions

(*This section should only be **completed by three-person groups**. Three-person groups are expected to **model SysML diagrams** in addition to UML diagrams. Three-person group scores (out of 130) will be normalized (out of 100).*)

5.1. SysML Requirement Diagram for Existing System

***SysML Requirement Diagram** for the **existing** system goes here.*

5.2. SysML Behavior Diagrams for Existing System

Three *SysML Behavior Diagrams (one* ***SysML Activity Diagram,*** *one* ***SysML Sequence Diagram, and*** *one* ***SysML State Machine Diagram****) for the* ***existing*** *system elaborating on the Requirement Diagram (section 5.1) go here.*

5.3. SysML Requirement Diagram for Suggestions

SysML Requirement Diagram *for* ***suggestions*** *to improve the existing system goes here.*

5.4. SysML Behavior Diagram for Suggestions

Three *SysML Behavior Diagrams (one* ***SysML Activity Diagram,*** *one* ***SysML Sequence Diagram, and*** *one* ***SysML State Machine Diagram)*** *for* ***suggestions*** *to improve the existing system elaborating on the Requirement Diagram (section 5.3) go here.*