

# Shinshu-IoT MDD Project

## IoT Gardening Project

### Code Name “Radish”

## Project Requirements Specification

This document is proprietary and confidential to Shinshu University, Institute of Technologists, the Computer Science teacher, Computer Science class students, their parents, family, relatives, classmates, friends and just about anyone else who wishes to understand the contents of this document. Go ahead, show it to anyone.

**Radish® is not really a registered trademark  
of One Fact Inc**



**Address:** 4 Chome-17-1 Wakasato, Nagano, 380-0928

**Telephone:** 026-269-5000

[www.shinshu-u.ac.jp](http://www.shinshu-u.ac.jp)

**Email:** [cort@roxsoftware.com](mailto:cort@roxsoftware.com)

**Version 0.2**

October 13, 2019

## Revisions

Rev	Description of Change	Date	By
0.1	creation of initial document	10/13/19	Cortland Starrett
0.2	adding project specific requirements	10/14/19	Cortland Starrett

## Approvals

Name	Role	Date
Cortland Starrett	Teacher / Engineering Manager	10/14/2019

# 1 Introduction to the Project Requirements Specification

## 1.1 Scope

This document describes the requirements for a senior/graduate -level class project for Computer Science at Shinshu University and the Institute of Technologists. The project will span a few days in the final week of the *xtUML Modeling, Execution and Translation* class offered at Shinshu University. Projects are assigned to teams of individuals in groups of 1 to 4 students per team. Each project will have an individual topic of focus, however, all projects will share a common set of general project requirements.

## 1.2 Goals of Projects in General

In elementary, secondary and university schools most assignments are individual in nature in order to facilitate individual measurement of learning. In industry, ministry and other "real world" work and research situations, most assignments are group and team oriented. Therefore, in this class, a project is assigned requiring work with a team. The scope of the project will allow for some depth of research into a single topic. And most of the learning will be of a "discovery" nature.

The goals of these projects include the following.

- Students will learn the subject matter of the project assigned.
- Students will experience and learn team dynamics (such as sharing the load, communication, cooperation, dealing with frustration, etc).
- Students will learn a step-by-step process to addressing an assignment that spans a few days.
- Students will learn organizational and planning skills.
- Students will dig deeply enough into a subject matter so as to have substantial results that can be shared, reported upon and used in the future for research.

### 1.3 References

The following books, notes and documents serve as reference material for this project.

1. syllabus of *xtUML Modeling, Execution and Translation*
2. notes, homework and quizzes assigned and completed before and during the activities of this project
3. [https://xtuml.github.io/xtuml.github.io/xtuml\\_class/xtuml\\_class.html](https://xtuml.github.io/xtuml.github.io/xtuml_class/xtuml_class.html)

### 1.4 General Instructions

All documentation should be shared with the teacher unless permission is obtained otherwise. This allows for collaboration, grading and back-ups.

## 2 General Project Requirements

ID	Name	Description	Due Date
G-1	abstract	Provide an abstract for your project that will serve as the abstract for your final project report. The abstract should be typed, with just one abstract for the entire project (and just one from the team). The abstract should be roughly 1/2 page.	10/15
G-2	role assignments	Provide a list of the roles and responsibilities of each team member. It will be part of the final report. The roles section should provide the name of each team member. Under (or beside or whatever) each name is a list that gives the name and description of the particular task or responsibility assigned or accomplished by the team member.	10/17
G-3	class blitz	Each team shall provide a list of candidate classes that	10/15

		may be included in the class diagram of the application under analysis.	
G-4	class diagram	<p>Model the application as an xtUML class diagram. Provide all of the following:</p> <ul style="list-style-type: none"> <li>● classes</li> <li>● class descriptions (in Japanese or English)</li> <li>● attributes</li> <li>● associations with multiplicity, conditionality and verb phrases (in Japanese or English)</li> <li>● association descriptions (in Japanese or English)</li> </ul>	10/16
G-5	photos	<p>Provide at minimum 5 digital photographs of meaningful project material. Photos may be of the team working together or of materials and experiments and prototypes.</p> <p>Provide a caption and date with each photo. Sharing the photos on Google Photos is one excellent option.</p>	10/17
G-6	class presentation	<p>Each team will be given time to present their project to the rest of the class and guest faculty. Speeches, visual aids, presentation material, videos and drama are acceptable. Content is of first priority, but creativity counts.</p> <p>All team members must participate in the class presentation.</p>	10/17
G-7	status emails	<p>Each team is to send a status email to the teacher at the end of each of the first 2 days of class. This email can be very short. It may be a simple "All is well." note. Or, it may contain questions and a request for help.</p>	10/15 10/16
G-8	final report	<p>The final report includes much of the above material and the material from the next section collected and organized together. Any format for the report is acceptable. Google Docs is recommended. (If you want, the teacher can share <i>this</i> document with you. Your team could simply <i>add</i> to it.)</p>	10/17

### 3 Specific Project Requirements

<b>ID</b>	<b>Name</b>	<b>Description</b>	<b>Due Date</b>
S-1	data analysis	Consider defining and/or addressing the following terms in your report. <ul style="list-style-type: none"><li>● light ratio</li><li>● temperature range</li><li>● mortality</li></ul>	10/17
S-2	targets	Referring to elements in your class diagram, identify the following: <ul style="list-style-type: none"><li>● 'good' values that should be maximized</li><li>● 'bad' values that should be minimized</li></ul>	10/17
S-3	score	Propose a means of calculating a 'score' from the values measured in IoT Gardening data acquisition. Your proposed scoring algorithm should have the possibility of predicting good vegetable growth when the score is high.	10/17