HW #1 Requirements Gathering & Capture

Com S/SE 409 & Com S 509, Fall, 2020

*Due by 8 p.m. Thursday, Sept. 3; turn in on **Gradescope** as a pdf*

Textbook reading assignment: Chapters 1-4, Robertson & Robertson, 3rd ed.

Homework Policy

Teams: The solutions are to be developed and written up together as a team, with participation by **all** members of the team on **all** questions. If an individual is unable to meet and work jointly each time with the team, then they should contact the instructor to arrange an alternative. The goal is for each of you to learn the material sufficiently well to use it productively, to think innovatively, and to develop confidence in your problem-solving abilities. Please talk to me individually about this if you have any questions.

The teams working on each project should function **separately**, except as specifically credited in the solution to the problem that is turned in, describing what the contribution was. The Dean of Students Office and the ISU Library offer several good resources, such as Academic Misconduct and Understanding Plagiarism , on avoiding plagiarism.

Late policy: 10% penalty per school day for late homework. For example, if an assignment due Thursday at 9:30 is turned in Thursday after that time, it is one day late; if received Friday after 9:30 it is two days late; if received Monday after 9:30 it is three days late, etc. Please contact me or the TAs in case of difficulties and emergencies.

HW#1 is intended as a Team assignment: one set of answers should be turned in with the names of all the team members who participated on it. If a team member does not participate fully, their name should not be on the team homework paper that is turned in. Instead that person should turn in an individual paper, or contact the instructor in case of an emergency.

Your semester team project will create the Software Requirements Specification for **EverGreen**, an integrated watering system for homeowners. Your team will develop the requirements for just the software controller, not the entire manufacturing unit. The client's initial description of that project is described in a separate document, also available on Canvas, and will be supplemented as requirements are elicited and refined.

1. *Understanding the context.* (40 pts.) Read pp. 38-43, pp. 70-72, and pp. 420-422 of the textbook. Produce and turn in a context diagram for EverGreen, using an editing or drawing tool of your choice. There is an example of a context diagram on p. 71.
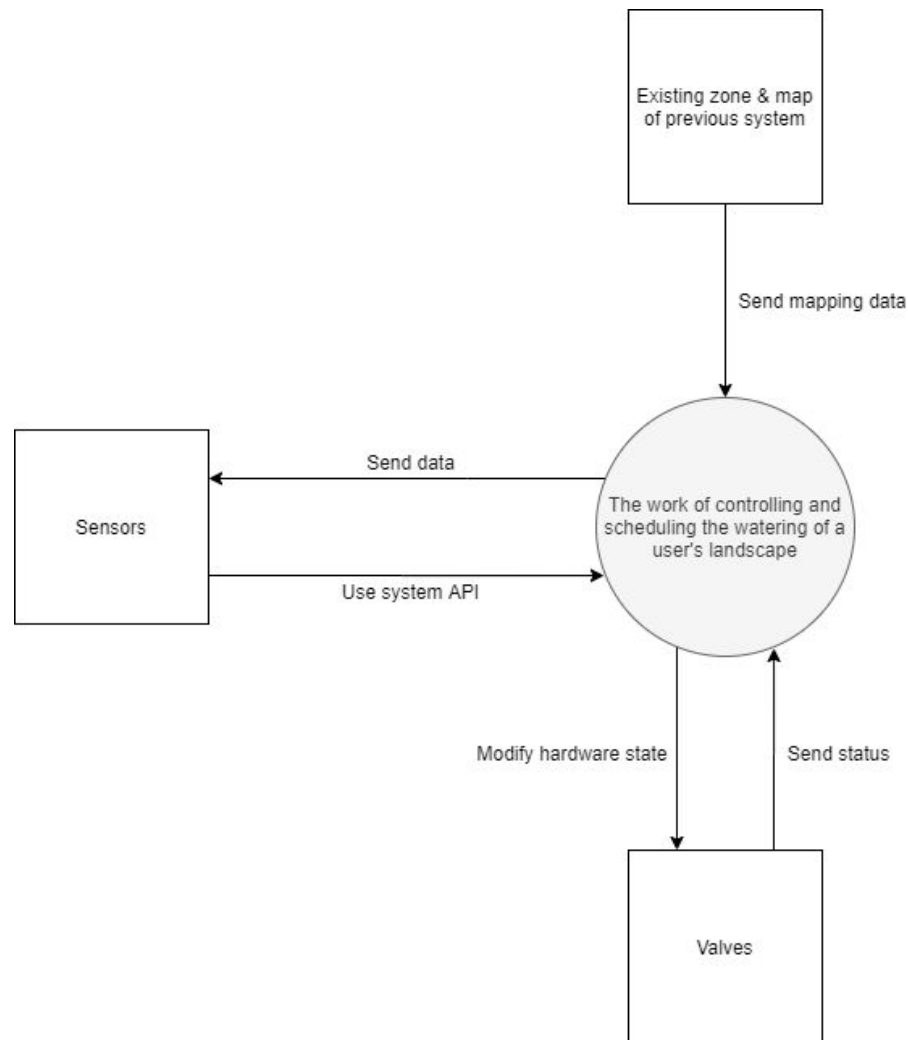
2. *Partitioning the work*. (30 pts.) In this step you determine the scope of your product. Read pp. 80-85 and pp. 429-432. Produce and turn in a product use case diagram for your project containing a complete set of high-level, product use cases. There is an example of a use case diagram on p. 84. (Robertson & Robertson recommend no more than 20 use cases for a product use case diagram.)
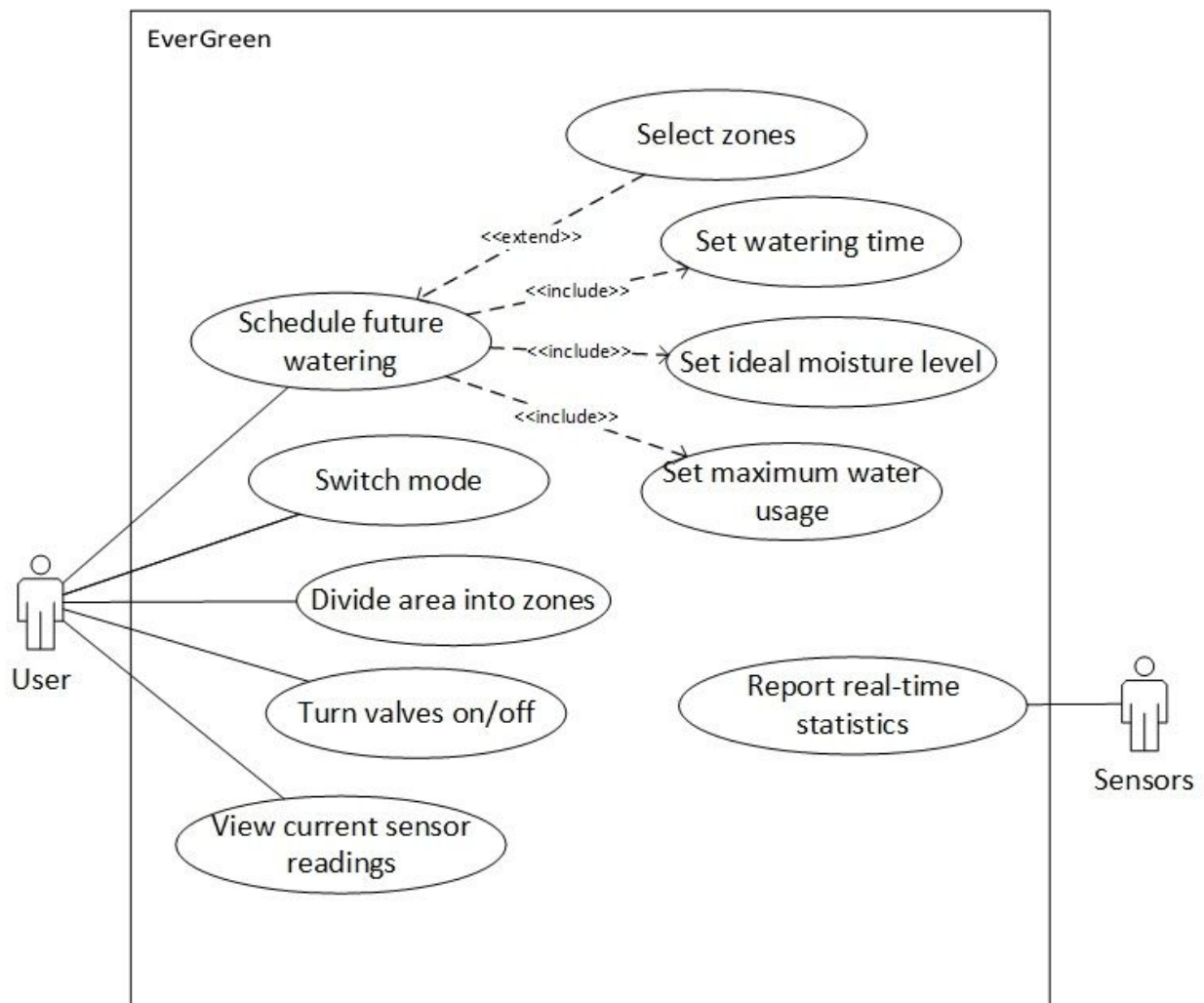
3. *Gaining knowledge of the domain*. (20 pts.) List the questions that your team feels they need to answer about the context, environment, use, client needs, etc. of EverGreen in order to "get the software requirements right" (per the goal stated in our textbook's subtitle).

- Will our system need to contact the weather forecast and change the watering schedule based on the information received?
- Would the user control the system via only the control panel or will there be an app to remotely control the system?
- What if a user does not have an existing watering system installed on their property? Can our system provide a service for them to order any hardware they may need through one of our providers?
- How accurately does the system need to accommodate for moisture level, water usage, and other settings?
- What kind of sensors is our system expected to support?

- What is the expected climate of the areas in which our system will be installed and how will that impact our system?
- Who is responsible for maintaining the sensors and valves used in our system?
- Are there any other uses for our system that our clients expect?
- What is the main purpose of developing this system? Is there a problem it is attempting to solve?
- Are there any chemicals that are needed in our watering system and if so, will our system need to monitor the concentration of those chemicals in the watering supply?
- Is there any competition in the market for our system? Are there other companies that have created a system similar to ours?

4.   List the members of your team, the email for each, and the role for each. If there are 3 people on your team, 1 person functions as both point of contact & project lead. If you are working individually or in a group of two, one person will assume multiple roles. (10 pts.)

- Customer interface: single point of contact with Client (Robyn/ Olukorede/Wand); communicate client needs to team. - **Aashray Mehta (ammehta@iastate.edu)**
- Project lead: coordination, scheduling firefighting; assembly and delivery of products - **Stamati Morellas (morellas@iastate.edu)**
- Domain expert: understand and explain what team needs to know about the application area, context, and adjacent systems. **Maksym Nakonechnyy (maksymn@iastate.edu)**
- Quality assurance: ensure that the delivered products accurately and completely describe/ satisfy the requirements. **Rithvik Menon (rtzmenon@iastate.edu)**