

Runtime Terrors (Team #5)

Hydroseed Calculator

CSC 131 Section 5

Software Requirement Specification (SRS)

Deliverable # 2- V.1.1

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Software Requirement Specification (SRS)

1. INTRODUCTION

1.1 Project Description

Brief overview of the project – highlighting its major features

- The project is a hydroseed calculator that will take an input (acreage or square foot) and output the total amount needed of compost, hydroseed, hydromulch, and its respective material composition in lbs or bags needed. The project's calculation formulas and rates derive from CalTrans.

1.2 Project Scope

System Context Diagram attached at pg #6

2. GENERAL DESCRIPTION

2.1 Glossary (Definitions, Acronyms, and Abbreviations)

Include any specialized terminology dictated by the application area or the product area. This will help the reader understand the rest of the text. Be sure to alphabetize the terms!

- **Compost** - Decomposed organic material
- **Fertilizer** - Used to provide plants with nutrients essential for growth
- **Hydromulch** - Mixture of fiber and tackified
- **Seed** - a flowering plant's unit of reproduction, capable of developing into another such plant.
- **Project Number** - a specific number that represents the project that the user is working on. The project number has a specification of 01-##### to 12-##### to represent the 12 regions of California.

2.2 Project Sponsor

Describes the client(s) background, overall expectations, and their business need

- As the client, Caltrans is expecting a calculator to determine the amount of raw material required for hydroseed application. The purpose of the hydroseed is to aid in erosion control by growing plant matter to act as a binding agent for the soil. With the project, Caltrans is hoping to allow its workers and contractors to calculate needed rates quickly while on the site.

2.3 User Characteristics

Who are the system users – their background and any other relevant information?

- The expected users would be the contractors who would be applying the hydroseed mixture in the field and the project managers who would be approving the expenses for the raw materials.
- An overseeing manager / administrator who is able to see their worker's calculation history. The admin would be able to see individual histories of each underlying user through the user sharing the calculation data via excel or text file format.

3. Object Oriented Analysis (OOA) – Use UML

3.1 Use Case Model attached at pg #7

3.2 Describe few of the system Use Cases

Use Case Name: Calculate Result

Use Case Number: UC0

Actors: User

Overview: This Use Case allows the user to input the amount of acres to be stabilized and receives a calculation result.

Related Use Cases: History Use Case (UC1) Stores the calculation result into the history use case where a user can later view the previous calculations if wanted.

Typical Flow (basic flow) Description: When a user inputs a number representation of acres into the input field and press calculate, the user will be displayed with the result

Alternative Flow Description: If the user inputs an incorrect acreage amount such as a negative value, then the exception handling flow will prompt a notification bubble prompting the user to try again.

Use Case Name: History

Use Case Number: UC1

Actors: User

Overview: This use case allows the user to access previous calculations made

Related Use Cases: UC0, receives the calculation data from use case UC0

Typical Flow (basic flow) Description: After calculating, the user may go to the history page to look at previous calculations and those include calculations that have not been saved.

Alternative Flow Description: If no calculations have been made, the history page will be empty.

Use Case Name: File Manager

Use Case Number: UC2

Actors: User

Overview: This use case allows a user to save the calculation as a text or excel file and will be stored into a page called the file manager. In the file manager, the user will be allowed to view, delete, or share all saved files. Users will also be able to search for specific files based on the file name/project number.

Related Use Cases: UC0, receives data from UC0 if the user chooses to save the result and turns it into a text or excel file..

Typical Flow Description: After a user goes through the process of doing a calculation. At the bottom of the calculation results page, the user will have the option of saving the results into a text or excel file. Once the user selects both or either of the two options, the file will be saved into the file manager tab that is located back at the home page.

Alternative Flow Description: If no calculations have been saved, the file manager page will not contain that calculation done.

4. System Functional Requirements

FRs- Based on the project description and the Use Case model, list all system functional requirements.

- *FR1.* Input area to be stabilized via a numeric button numpad
- *FR2.* Toggle between two different units for input, sqft or acres.
- *FR3.* Toggle between 1500/3000 gallon tank size
- *FR4.* History button to bring user to a page with most recent calculations
- *FR5.* Share functionality with calculations through email
- *FR6.* Convert calculations into a text file(.txt) or excel spreadsheet file(.csv)
- *FR7.* Input for application rates for each layer and its components.
 - Compost Layer - application rate input
 - Hydroseed Layer - application rate input for seed, fiber, and etc.
 - Hydromulch Layer - application rate input for tackifier, fiber, and etc.

NFRs - system attributes such as usability, reliability, and performance, etc.

- user interface that enhances user friendliness and usability
- high performance in calculations of all numbers from small to large inputs
- a color scheme that matches caltrans logo colors
- no delay in switching to different pages or tabs of the application
- efficient search of specific files by project number with 1000's of stored files.

5. User View of Product Use

This section provides a user's-eye-view of the product. This may include aspects such as narrative to describe the setting, sketches to show possible appearance of the screen, samples of the data that is stored, entered, or output, and scenarios that demonstrate the product in operation.

6. General Constraints and Assumptions

List any relevant constraints and assumptions

Assumptions

- The users will already be familiar with the raw materials that are given as the output, very limited user group
- A brief understanding on how navigate the user interface.(i.e How to use a phone, interact with a touch screen, and how to use a calculator)

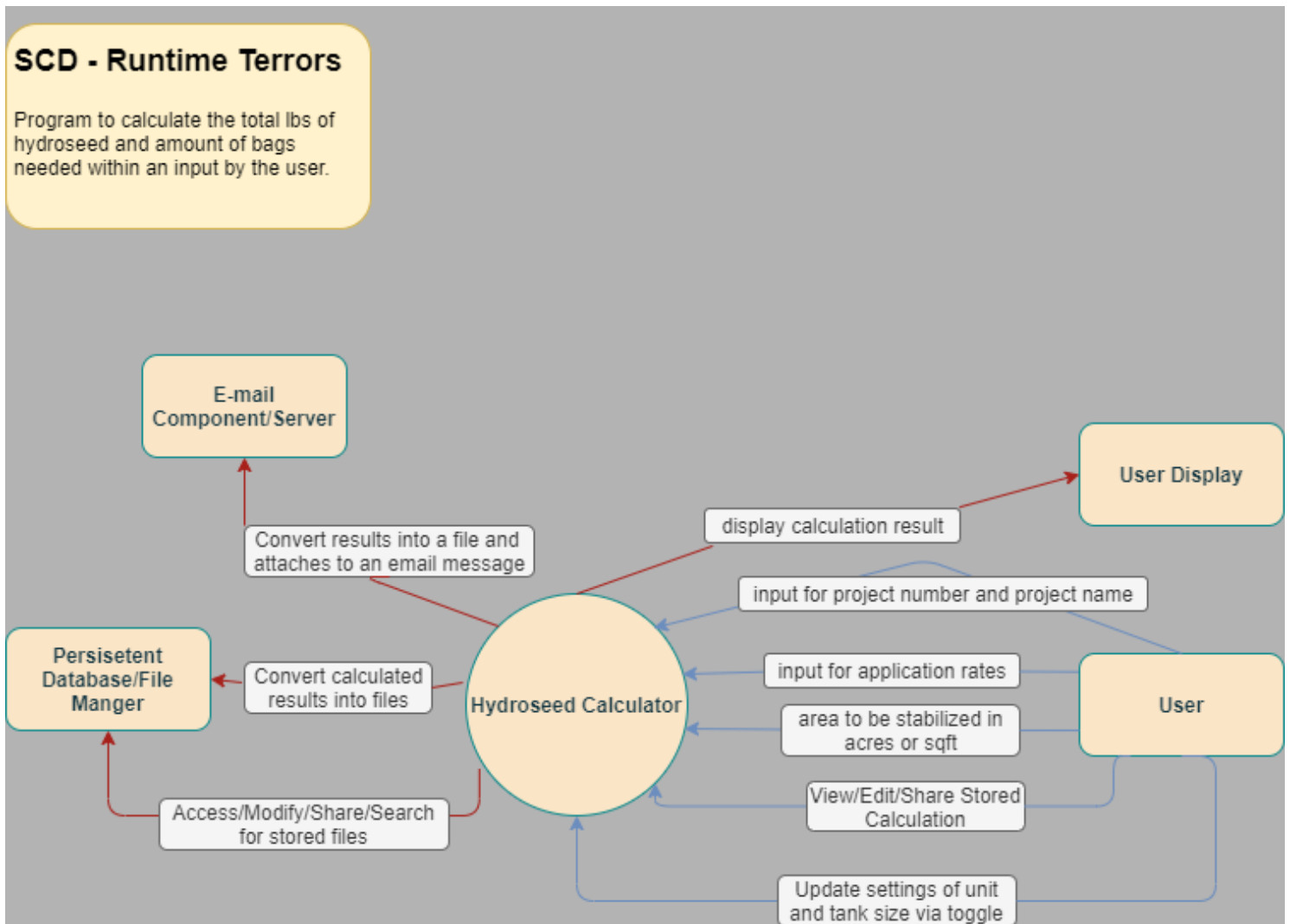
Constraints

- User will be given a raw square footage calculation rather than an area catered to the landmass's shape.

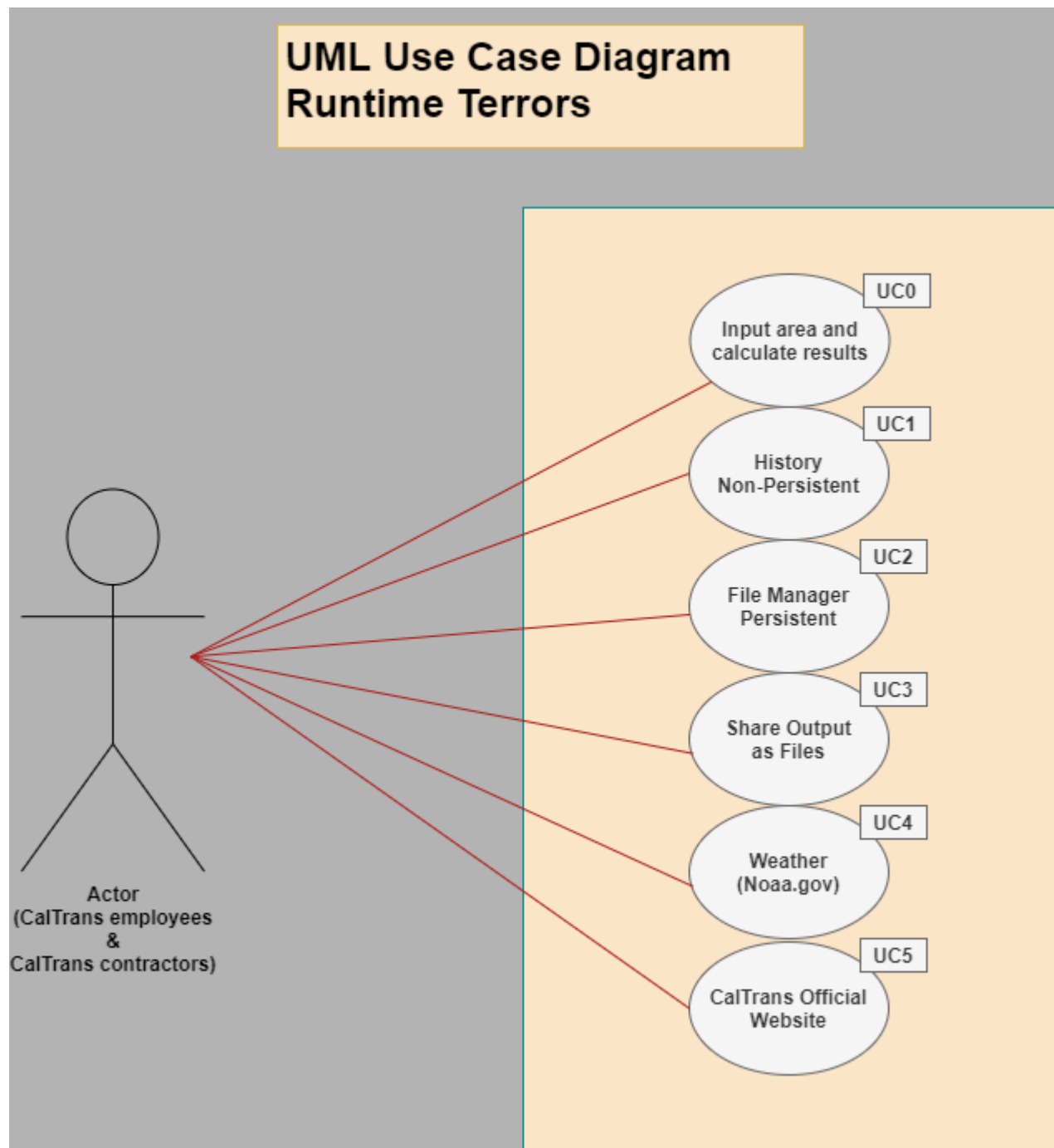
7. Team Members Roles and Approval

Mickey Huang:	[Team Lead, Floater && Base Code]
Jesus Beltran:	[Data Persistency && BitBucketManager]
Enrique Alvarez:	[GUI, App, && Layout Designer]
John Kieren:	[User Input GUI, UX]
Steven Aguirre:	[Historic Calculations && Storage]

System Context Diagram



USE CASE DIAGRAM



Revision History		
Revision #	Date	Comments
v0.01	3/02/2021	Creation of the SRS document
v0.02	3/15/2021	Completion of section 1, 2, 3
v0.03	3/29/2021	Completion of the rest of the document
v0.04	4/01/2021	Revised all sections to fit prototype and added new requirements to match prototype session comments from client
v0.05	4/09/2021	Revision of non-functional requirements, added new nfrs to match new features added in application
v0.06	4/20/21	Revision of full document to fix any issues with wording/unclear statements or phrases
v0.07	4/29/21	Revision of diagrams to better match the current project and add in all new use cases from addition of new features such as file manager and history...
v0.08	5/15/21	Fix small errors in wording and review full document with team and sent in for final draft