COEN 275 – Object Oriented Analysis, Design & Programming

Project Analysis Document

Team:

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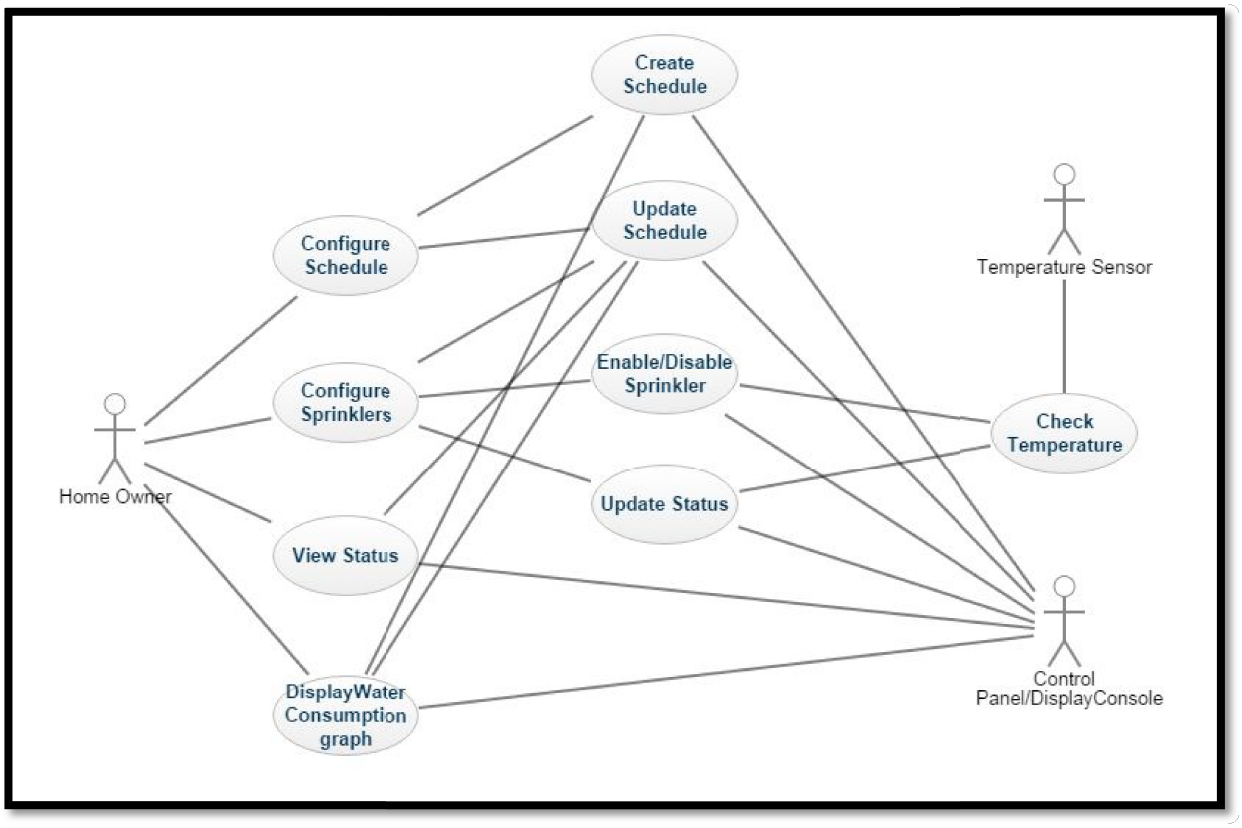
Use Case Diagram:



Use Cases:

Use Case	Configure Sprinkler System	
Actors	Home Owner, Control Panel	
Purpose & Description	To Configure the system to schedule the sprinklers to start and end at a specific time and the amount of water to be used by the sprinklers	
Type	Primary, Essential	
Cross-References	Scenario Details	
	Actor Action	**System Response**
	1 - Home Owner selects the Configure sprinkler Option.	2 – Displays a menu to select the start time and end time of sprinklers for each day of the week and also the amount of water to be used by the sprinklers
	3 – Selects start time, end time and the amount of water to be	4 – Save or update the Schedule.

	used by the sprinklers for an hour and save/update the schedule	
Alternative Courses	• If there is any error in creating or updating a schedule, Indicate the same.	

Use Case	Configure Sprinkler System	
Actors	Temperature sensor, Control Panel, Home Owner	
Purpose & Description	To Enable the system	
Type	Primary, Essential	
Cross-References	Scenario Details	
	Actor Action	**System Response**
	1 – Temperature Sensor checks if the temperature is greater than 90 F / lesser than 55 F	2 – Enables/Disables all the sprinklers accordingly
	3 - Home Owner enables/disables individual sprinklers or a group of sprinklers	4 – Save/Update the status of the sprinklers
Alternative Courses	• If any sprinkler is not being enabled, display the same.	

Use Case	View Sprinkler Status	
Actors	Home Owner, Control Panel, Temperature Sensor	
Purpose & Description	To View the status of the Sprinkler	
Type	Primary, Essential	
Cross-References	Scenario Details	
	Actor Action	**System Response**
	1 - Home Owner selects the View Status tab.	2 – Displays today's schedule and status of sprinklers
	3 – Updates sprinkler status	4 – Displays current sprinkler status
Alternative Courses	• If any sprinkler's status cannot be retrieved, indicate the same.	

Use Case	Display water Consumption Graph	
Actors	Home Owner, Control Panel	
Purpose & Description	To view the amount of water consumed by the given sprinkler	
Type	Primary, Essential	
Cross-References	Scenario Details	
	Actor Action	**System Response**
	1 - Home Owner selects the Check water Consumption Option.	2 – A bar Graph is displayed with the amount of water consumed by each sprinkler individually, area wise and overall.
Alternative Courses	• If the values aren't calculated or retrieved, indicate that the graph cannot be displayed.	

Use Case	Check Temperature
Actors	Temperature Sensor, Control Panel

Purpose & Description	To check the temperature and input it into the system for future processing.	
Type	Secondary, Essential	
Cross-References	Scenario Details	
	Actor Action	**System Response**
	1 - The temperature sensor senses the temperature in the surrounding and inputs it to the system	2 – The system uses these values and compares with the higher and lower thresholds to either enable or disable the Sprinkler System
Alternative Courses	• If the temperature is not activated, indicate the same.	

CRC Cards

Important Classes:

- SprinklerOptions
- Scheduler
- EnableSprinkler
- Temperature
- Sprinkler
- Status

Class Name : SprinklerOptions	
Responsibilty	**Collaborators**
• Display options to configure the Schedule, Enable or Disable the Sprinkler System. • View Sprinkler Status • Display the water consumption Graph	• Scheduler • EnableSprinkler • Temperature • Sprinkler • Status

Class Name : Scheduler	
Responsibilty	**Collaborators**
• Creates a default schedule for the week. • Updates the schedule for any one day or many days in the week.	• EnableSprinkler

Class Name : EnableSprinkler	
Responsibilty	**Collaborators**
• Enables one or many sprinklers based on the user inputs. • Enables Sprinkler based on schedule • Enables sprinklers based on Temperature.	• Sprinkler • Schedule • Temperature • Status

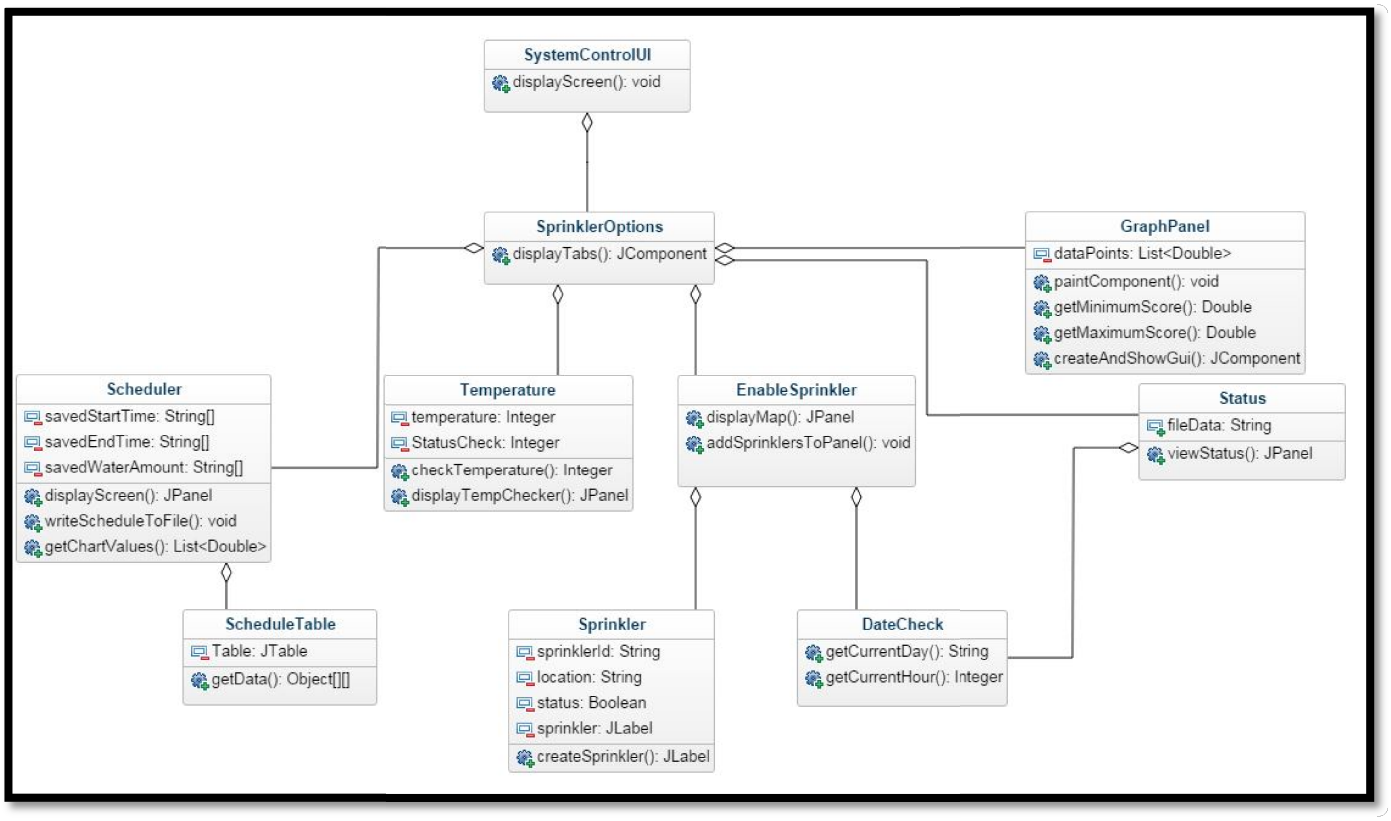
Class Name : Temperature

Responsibilty	Collaborators
• Checks the temperature and enables or disables the sprinkler based on the temperature.	• EnableSprinkler • Status

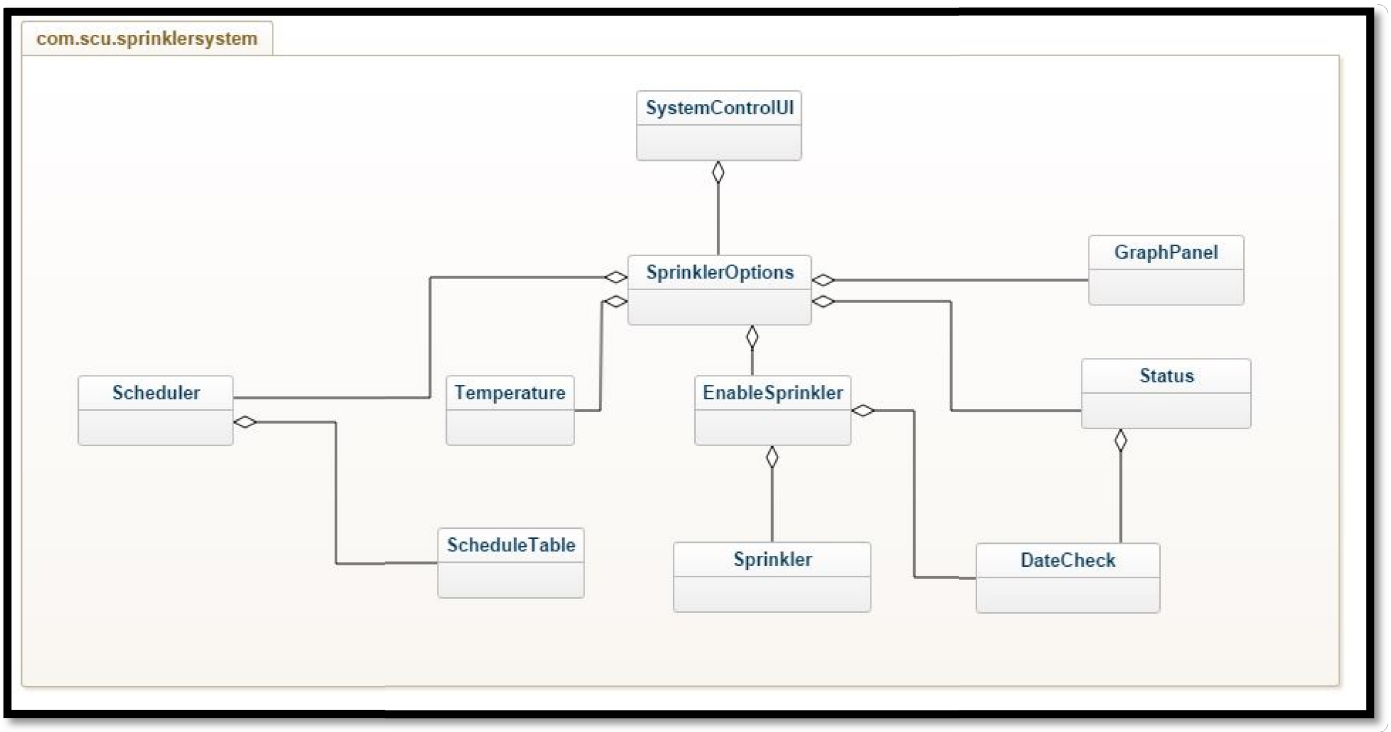
Class Name : Status	
Responsibilty	**Collaborators**
• Keeps track of all the sprinklers in the system and its status.	• Temperature • EnableSprinkler • Scheduler

Class Name : Sprinkler	
Responsibilty	**Collaborators**
• Sets the user ID for each sprinkler • Sets location of each sprinkler	• EnableSprinkler

Class Diagram:



Package Diagram:



Sequence Diagram: