



Sri Lanka Institute of Information Technology

Solar Power Management System

Information Technology Project (IT2080)

Requirement Engineering Activity

ITP_WD_B08_G12

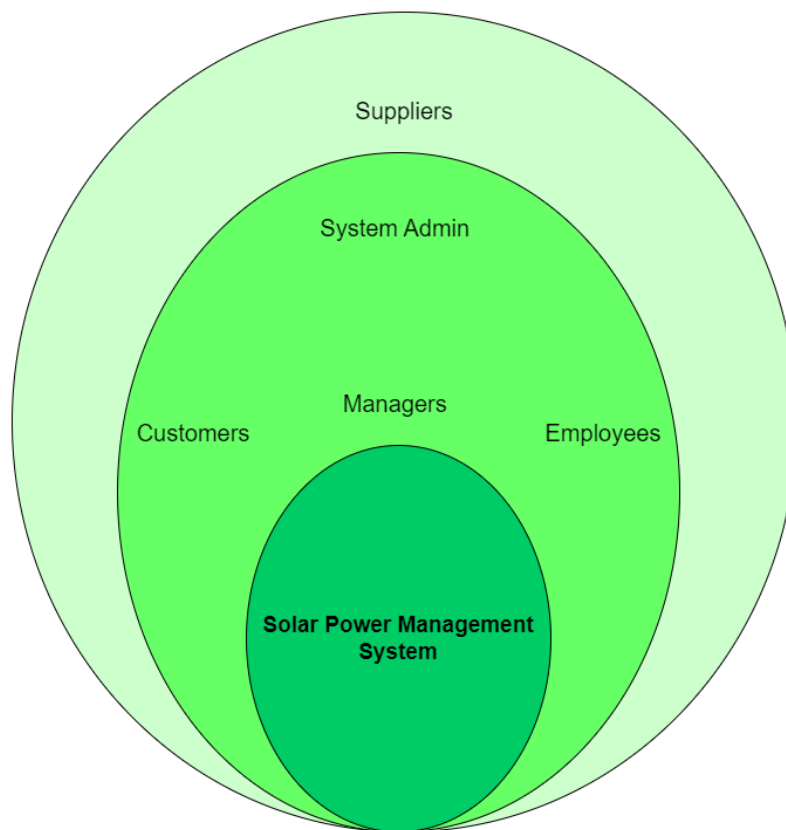
Group Member Details

	Name with Initials	Registration Number	Contact Phone Number	Email
1.	Rashmitha K.M.	IT21284120	0706959277	it21284120@my.sliit.lk
2.	De Silva L.K.N.	IT21283062	0779187146	it21283062@my.sliit.lk
3.	Malwaththa M.A.G.I.	IT21255410	0715206363	it21255410@my.sliit.lk
4.	Jayasinghe K.W.	IT21277436	0767672862	it21277436@my.sliit.lk
5.	Padukka P.D.M.D.	IT21277504	0778922349	it21277504@my.sliit.lk
6.	Athukorala P. D.	IT21283994	0716867565	it21283994@my.sliit.lk
7.	Hapuarachchi T. L.	IT21281846	0779402492	it21281846@my.sliit.lk
8.	Waduge T.R.	IT21267536	0783798080	it21267536@my.sliit.lk

Stakeholders of the System

1. Admin
2. Customers
3. Employees
4. Managers
5. Suppliers

Onion Diagram



User Stories

User Story 01

As a system admin, able to configure user settings so that I can control access and handle errors.

User Story 02

As a customer, I can edit my details on my profile page so that I can keep my personal to date.

User story 03

As an employee, I can edit and view the personal details on my profile when necessary, so that I can keep those details up to date.

User story 04

As a manager, I want to manage all details about supplying, purchasing, services, customers, employees, and others and keep updating reports to check the productivity of service.

Rashmitha K.M.

IT21284120

1) Employee Management

Functional Requirements

1. Login – Admin, Manager, Employee
2. Add new employees – Manager
3. View employee details - Manager, Employee
4. Update employee details – Employee
5. Delete employee details - Manager
6. Generate monthly attendance report – Manager

Non-functional Requirements

1. Availability
2. Performance
3. Accuracy
4. Maintainability
5. Security

Technical requirements

1. Web-based Application
2. Back end – Node JS
3. Front End – React
4. Database – Mongo DB
5. UX/ UI – Figma

Use case Description.

Use CaseName	Employee Management	
Actor	Employee	
Goal	Manage employee management productively	
Overview	When employee entered their attendance into the system	
Pre-conditions	The employee should be a registered one	
Post-conditions	Should mark their attendance	
Basic path	Step	Action
	1	The use case starts with employee login to the system.
	2	The employee enters the employee ID and arrival time.
	3	The system checks employee validation.
	4	The employee after work enters the employee ID and departure time into the system to complete the attendance.
Alternative path	step	Action
	3a.	The system detects half-day leave for the ID number.
	3b.	The system sends a notification to the employee if the system accepts their half-day request after analyzing the attendance report of the relevant employee.
NFRs	<ol style="list-style-type: none">1. Availability2. Performance3. Accuracy4. Security5. Maintainability	
TRs	<ol style="list-style-type: none">1. Web-based Application2. Back end – Node JS3. Front end – React4. Database – mongo DB5. UX/UI – Figma	

De Silva L.K.N.

IT21283062

2) Repair & Services Management

Functional Requirements

1. Login.
2. Add new repair requests.
3. View repair request.
4. Update repair request.
5. Delete repair request.
6. Calculating the estimated cost of repair.
7. Generate monthly repair balance report.

Non-functional Requirements

1. Speed
2. Security
3. Portability
4. Capacity
5. Reliability
6. usability

Technical Requirements

1. web-based Application
2. Back end – Node JS
3. Front end – React
4. Database – Mongo DB
5. UX/ UI – Figma

Use case Description.

Use CaseName	Repair & Services Management	
Actor	Repair manager	
Goal	Manage repair & services efficiently.	
Overview	When the customer adds a repair request form.	
Pre-conditions	The customer should be a registered one.	
Post-conditions	The customer confirms the repair requesting form.	
Basic path	Step	Action
	1	The customer login to the system.
	2	The customer adds new repair requesting form.
	3	The system sends an estimated invoice back to the customer.
	4	The customer confirms the request.
	5	The system generates recite with repair details to the customer.
Alternative path	step	Action
	4a.	After checking the invoice customer confirm the request.
	4b.	The customer cancels the request system redirects the customer to the repair requesting interface.
NFRs	<ol style="list-style-type: none">1. Speed2. Security3. Portability4. Capacity5. Reliability6. usability	
TRs	<ol style="list-style-type: none">1. Web-based Application2. Back end – Node JS3. Front end – React4. Database – mongo DB	

	5. UX/UI – Figma
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Malwaththa M.A.G.I.

IT21255410

3) Inventory Management

Functional Requirements

1. Admin Login.
2. Add New Items to the Inventory.
3. View Inventory.
4. Update Inventory.
5. Delete Items in the Inventory.

Nonfunctional Requirements

1. Availability
2. Performance
3. Accuracy
4. Maintainability
5. Security

Technical Requirements

1. Web-based Application
2. Back end -Node JS
3. Front end - React
4. Database-Mongo DB
5. UX/UI-Figma

Use case Description.

Use CaseName	Inventory Management	
Actor	Manager	
Goal	Update the Inventory	
Overview	Manager Update the Inventory when Adding new items, update the current items and delete them	
Pre-conditions	Manager Log in to the system	
Post-conditions	Generate the monthly report about the total value of items and out-of-stock items.	
Basic path	Step	Action
	1	Manager Log in to the System
	2	Navigate the Inventory Page
	3	Update the Inventory
	4	Generate The Monthly Report About Total value and the out-of-stock Items
Alternative path	step	Action
	1.a	Invalid Login: Suggest Forget Password option to Change Password
	3.a	If there is any item to add Inventory Select Add Item Option
	3.a.1	Showing a Success Message when clicking on the submit button
	3.b	If there is any Item to Update Select the Update Button
	3.b.1	After Updating the Information Click on the Submit button and redirect back to the Inventory page
	3.c	If there is any item to delete, then select the Delete button
	3.c.1	Showing A Message when an Item was deleted

NFRs	<ol style="list-style-type: none">1. Availability2. Performance3. Accuracy4. Security5. Maintainability
TRs	<ol style="list-style-type: none">1. Web-based Application2. Back end – Node JS3. Front end – React4. Database – mongo DB5. UX/UI – Figma

Jayasinghe K.W.

IT21277436

6) Customer Management

Functional Requirements

1. Customer login.
2. Customer registration.
3. View customer details.
4. Update customer details.
5. Delete customer details.
6. Generate weekly customer reports.

Non-functional Requirements

1. Availability
2. Performance
3. Accuracy
4. Maintainability
5. Security

Technical requirements

1. Web-based Application
2. Back end – Node JS
3. Front End – React
4. Database – Mongo DB
5. UX/ UI – Figma

Use case Description.

Use CaseName	Customer Management	
Actor	Customer	
Goal	The customer place an order	
Overview	The customer selects a product and places an order through the system	
Pre-conditions	The customer has selected a product	
Post-conditions	The customer has successfully placed an order	
Basic path	Step	Action
	1	The customer selects a product
	2	The customer enters personal details
	3	System validates details
	4	The customer enters delivery details
	5	Submits the purchase request to the system
	6	The manager validates the request
	7	The system sends an email confirming the that customer has successfully placed an order
Alternative path	step	Action
	3a	The system shows an error message and allows to enter details again
	6a	Denys the request and sends a message with the reason
NFRs	6. Availability 7. Performance 8. Accuracy 9. Security 10. Maintainability	
TRs	6. Web-based Application 7. Back end – Node JS 8. Front end – React 9. Database – mongo DB 10. UX/UI – Figma	

Padukka P.D.M.D.

IT21277504

5) Finance Management

Functional Requirements

1. Login.
2. Manage payment method.
3. Manage expenses.
4. View the bill report.
5. Calculate the salary of the employees.
6. Calculating monthly income.
7. Generate weekly and monthly income reports.

Non-functional Requirements

1. Availability
2. Speed
3. Accuracy
4. Security
5. Maintainability

Technical Requirements

6. web-based Application
7. Back end – Node JS
8. Front end – React
9. Database – Mongo DB
10. UX/ UI – Figma

Use case Description.

Use CaseName	Finance Management	
Actor	Finance Manager	
Goal	Manage finance system	
Overview	When the manager generates the report	
Pre-conditions	The manager needs to log in to the system	
Post-conditions	Generate the reports and balance sheet	
Basic path	Step	Action
	1	Go to the login page and enter login credentials
	2	Display User Profile
	3	Go to the income menu
	4	Generate the income report
	5	Go to the expenses menu
	6	Add / Remove expenses
	7	Edit expenses
	8	Go to the employee salary menu
	9	Add the required credentials and submit
	10	Go to balance sheets
	11	Generate balance sheets.
Alternative path	step	Action
	1.a	If login credentials are incorrect system asks to enter the credentials again
	4.a	Display successful message
	6.a	Display successful message
	11.a	Display successful message

NFRs	<ol style="list-style-type: none">1. Availability2. Performance3. Accuracy4. Security5. Maintainability
TRs	<ol style="list-style-type: none">1. Web-based Application2. Back end – Node JS3. Front end – React4. Database – mongo DB5. UX/UI – Figma

Athukorala P.D.

IT21283994

6) Promotions & Offers Management

Functional Requirements

1. Login
2. Add new promotions and offers details.
3. View promotions and offers details.
4. Update promotions and offers details.
5. Delete promotions and offers details.
6. Generate monthly sales reports with promotions and offers.

Non-functional Requirements

1. Availability
2. Performance
3. Accuracy
4. Maintainability
5. Security

Technical requirements

1. Web-based Application
2. Back end – Node JS
3. Front End – React
4. Database – Mongo DB
5. UX/ UI – Figma

Use case Description.

Use CaseName	Promotions and Offers Management	
Actor	Promotion manager	
Goal	Develop strategies to promote products to boost sales	
Overview	When employee entered their attendance into the system	
Pre-conditions	The promotion manager should be logged in to the system	
Post-conditions	Should mark their attendance	
Basic path	Step	Action
	1	The use case starts with the promotion manager's login to the system.
	2	The promotion manager enters the login credentials.
	3	The system checks employee validation.
	4	The promotion manager updates promotions and offers details.
	5	The promotion manager logout from the system.
Alternative path	step	Action
	6. a	The system shows a message as "invalid login credentials".
	7. b	The promotion manager enters the correct login credentials.
	3.c.1	The promotion manager must select the "forgot password" option to renew the password.
	3.c.2	The promotion manager enters the new password and logs into the system.
NFRs	<ol style="list-style-type: none">1. Availability2. Performance3. Security4. Accuracy5. Maintainability	

TRs

1. Web-based Application
2. Back end – Node JS
3. Front end – React
4. Database – mongo DB
5. UX/UI – Figma

Hapuarachchi T. L.

IT21281846

7) Project Management

Functional Requirements

1. Login
2. Add new projects
8. View projects
9. Update projects
10. Delete projects
11. Generate a report of projects

Non-Functional Requirements

1. Availability
2. Usability
3. High Security
4. Accuracy

Technical Requirements

1. Web-based system
2. Back end - Node JS
3. Front end – React
4. Database – Mongo DB
5. UX / UI – Figma

Use case Description.

Use Case Name	Project Management	
Actor	Project Manager	
Goal	As a Project Manager, I want to log in to the system and check finished projects, ongoing projects, and the progress of projects. So then I can find details about sites.	
Pre-Condition	Project Manager must log in to the system	
Post-Condition	Generate project report	
Basic path	Step	
	1	Project Manager logs in to the system
	2	Project Manager Search for project
	3	Add new projects to the system
	4	View project
	5	Update project
	6	Remove project
	7	Generate project report
Alternative path	Step	
	1.1	If the username or password is invalid system generates an alert message "Invalid username or password"
NFRs	<ol style="list-style-type: none">1. Availability2. Usability	
TRs	<ol style="list-style-type: none">1. Web-based system2. Back end - Node JS3. Front end – React4. Database – Mongo DB5. UX\ UI – Figma	

Waduge T.R

IT21267536

8) Transport Management

Functional Requirements

1. Log in to the system
2. View pending orders
3. Update order status
4. Verify the order

Non-Functional Requirements

1. Performance
2. Usability
3. Security
4. Scalability
5. Availability

Technical Requirements

1. Web-based system
2. Back end - Node JS
3. Front end – React
4. Database – Mongo DB
5. UX / UI – Figma

Use case Description.

Use Case Name	Transport Management	
Actor	Transport Manager	
Goal	Manage the transportation mechanism of the company	
Pre-Condition	The transport Manager must log in to the system	
Post-Condition	Generates the report on transports made	
Basic path	Step	
	1	The transport manager logs in to the system
	2	The system checks employee validation
	3	Checks the quota balance of petrol or diesel per vehicle
	4	Insert vehicle details
	5	Check available drivers
	6	Check available vehicles
	7	End of the day system generates a report of daily transport details
Alternative path	Step	
	1.a	If the username or password is invalid system generates an alert message "Invalid username or password"
	1.b	The transport manager enters the correct login credentials
	1.c	The transport manager must select the "forgot password" option to renew the password.
	1.d	The transport manager enters the new password and logs into the system.
	3.a	Inform drivers
	4.a	Update details
	4.b	Delete details

	4.c	Add details
	4.d	Delete details
	4.e	View details
	4.f	Search details
	5.a	Send a notification
NFRs	<ol style="list-style-type: none"> 1. Availability 2. Usability 	
TRs	<ol style="list-style-type: none"> 1. Web-based system 2. Back end - Node JS 3. Front end – React. 4. Database – Mongo DB 5. UX\ UI – Figma 	

Use Case Diagram

https://drive.google.com/drive/folders/1s2X7V936bwyCNi1bVEU373WeTb68GMf1?usp=share_link

