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Reg # FA22-BCE-028

Requirement Analysis Document

1. Functional Requirements

- 1. Users shall be able to view a catalogue of solar panels.
- 2. Users shall be able to view detailed specifications of each product.
- 3. Users shall be able to add products to a cart.
- 4. Users shall be able to place orders via a checkout form.
- 5. Total price of all the items in the cart will be shown

2. Non-Functional Requirements

- 1. The application shall be responsive on mobile, tablet, and desktop devices.
- 2. The website shall have cool animations.
- 3. The system shall be built using a modular React + Vite structure for faster builds.
- 4. The system shall secure user data with HTTPS and input validation.

3. Use Case Specifications

Use Case 1: View Catalogue

Field	Description
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Use Case Name	View Catalogue
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Priority	High
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Trigger	Customer opens the homepage
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Scope	Solar Panel Catalogue Website
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Level	User goal
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Precondition	Website is accessible; customer is on the homepage
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Basic Path	1. Customer lands on homepage2. Catalogue is displayed
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Alternative Path	1. If no products are found, a "No products available" message is shown
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Field	Description
Postcondition	Catalogue of solar panels is visible to the customer
Exception Path	1. Internet/server issue: show error message

Use Case 2: Add to Cart and Checkout

Field	Description
Use Case Name	Add to Cart and Checkout
Priority	High
Trigger	Customer clicks "Add to Cart" and proceeds to checkout
Scope	Solar Panel Catalogue Website
Level	User goal
Precondition	Customer has selected at least one product
Basic Path	1. Customer clicks "Add to Cart" 2. Cart updates 3. Customer proceeds to checkout 4. Fills form and submits order
Alternative Path	1. Customer removes item from cart before checkout
Postcondition	Order is placed, and customer sees confirmation
Exception Path	1. Validation error in checkout form 2. Server error during order

Use Case 3: View Product details

Field	Description
Use Case Name	View Product Details
Priority	Medium
Trigger	Customer clicks on a product

Field	Description
Scope	Solar Panel Catalogue Website
Level	Subfunction
Precondition	Customer is on the catalogue page
Basic Path	1. Customer clicks a product2. Product detail page opens with full specs
Alternative Path	1. Image or spec missing: Show fallback UI
Postcondition	Product details are shown
Exception Path	1. Product ID invalid → Show "Product not found" error

Use Case 4: View Total Price in Cart

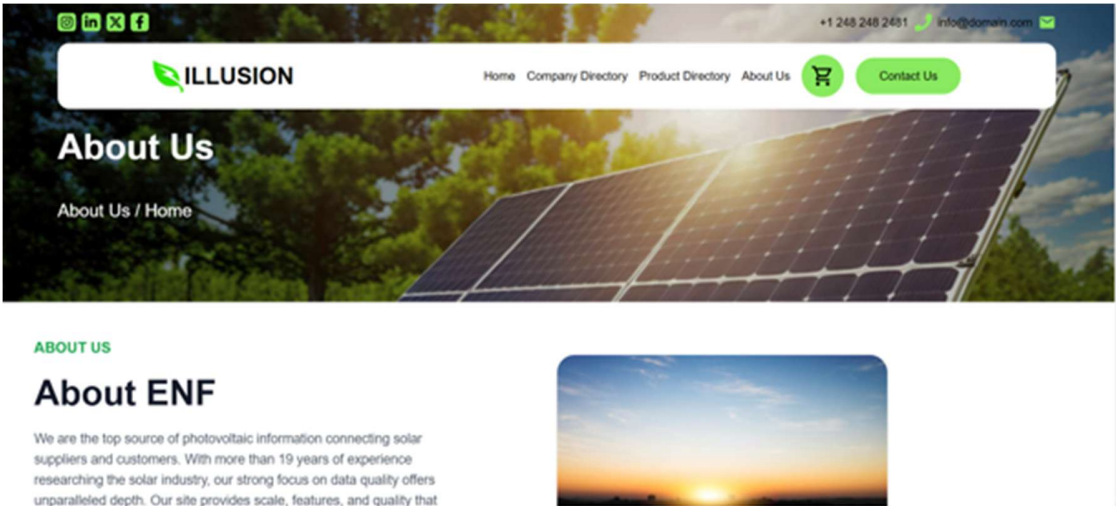
Actor: Customer

Description: The user can see total price in the product cart that updates if you increase quantity.

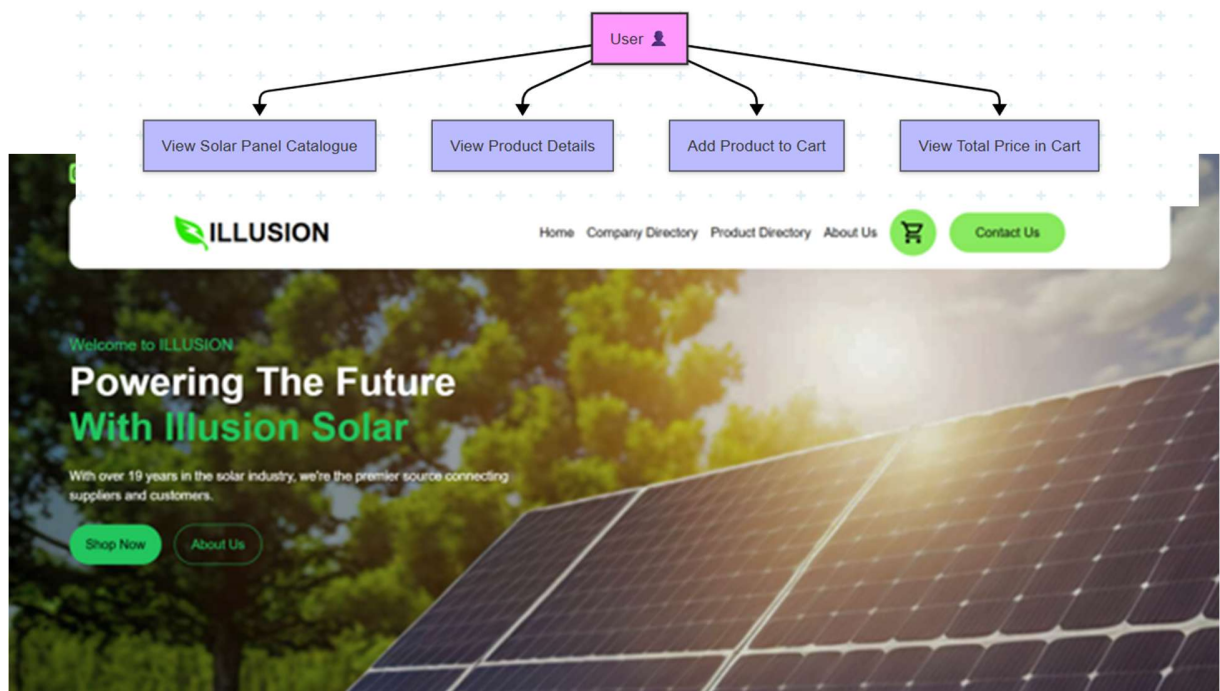
Field	Description
Use Case Name	View Total Price in Cart
Priority	Medium
Trigger	Customer opens cart or updates product quantity
Scope	Solar Panel Catalogue Website
Level	Subfunction
Precondition	Cart contains at least one item
Basic Path	1. Customer opens cart2. System displays product list with prices3. Total price is updated based on quantity
Alternative Path	1. User sets quantity to 0 → item is removed from cart
Postcondition	Cart reflects updated total price

Field Description

Exception Path 1. Price data not loaded → show default/error value

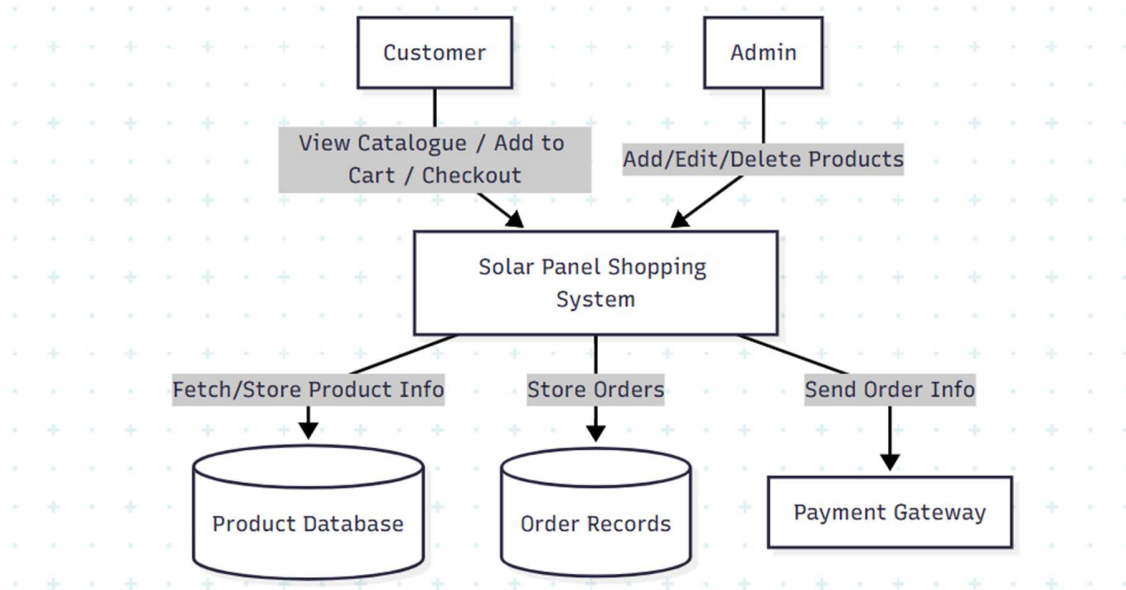


5. Use Case Diagram



6. UI screenshots

7. DFD 0



8. DFD 1

