

SolarEase

An AI-Powered Dashboard that Makes Going Solar Easier

1 Problem

Uncertainty in Solar Adoption

Despite rising energy costs and grid instability, **individuals** and **communities** struggle to adopt solar microgrids due to a lack of clear guidance and financial clarity.

Key Barriers

- Lack of Educational Resources
- Unclear Financial Analysis
- Unintuitive Tools

2 Approach

User-Driven Design Process

We studied solar adoption **barriers**, gathered **user insights**, and identified **key features**. Through **iterative prototyping** and **usability testing**, we refined designs before implementation. These findings shaped **design decisions**, ensuring the dashboard aligns with **user needs**.

Research-Informed Design Decisions

User Needs	Design Decisions
Role-Based Personalization	**Profile Selection** User Profile Selection & Setup
Clear, Actionable Education	**Solar 101** Personalized Solar Energy Basics
Financial & Feasibility Focus	**Financial Evaluation** Cost Savings, Feasibility, and Installability
Beyond Structured Insights	**Soli (AI Solar Chatbot)** Answers to User-Specific Questions

3 Solution: SolarEase

Dashboard Structure

SolarEase

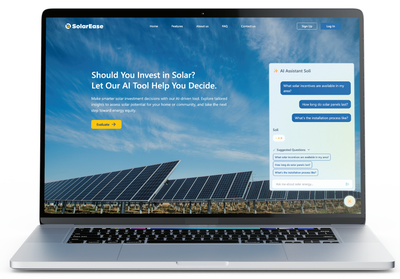
- **Solar 101** — Provides **educational resources** tailored for individuals and communities, helping users understand solar energy, its benefits, and adoption.
- **Chatbot-Soli** — Offers real-time, user-specific guidance on **financial incentives**, installation options, and solar feasibility, improving accessibility and engagement.
- **Evaluation Tool** — Delivers a **personalized** solar feasibility **analysis**, estimating cost savings, investment return, and installation fit for both individuals and communities.

Key Features



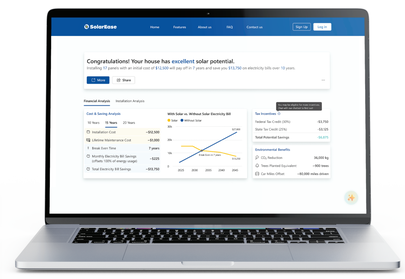
Interactive Diagram

How does solar energy work?



AI Solar Chatbot

What are my local incentives?



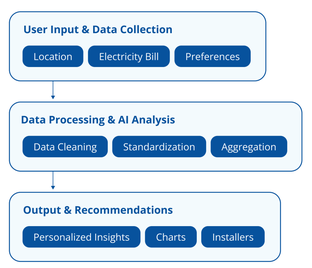
Financial Evaluation

How much can I save with solar?

Technical Foundation

Component	Technology	Function
Frontend	React.js, Next.js, Tailwind CSS	Ensures seamless UI/UX
Backend	Python (Flask API)	Handles data processing & calculations
External APIs	Solar API, REopt, PVWatts	Provides solar potential & financial modeling
AI Processing	OpenAI API, AutoGen API	Chatbot assistance & insights
Data Storage	Azure SQL, NoSQL, Netlify	Stores and serves solar data securely

Data Flow



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