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E-SOLARCONNECT: A DIGITAL PLATFORM FOR ENHANCED AND INTEGRATED SOLAR ENERGY SOLUTIONS

"Powering the Future with Clean Energy"

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ABSTRACT- Then, we sit down to write a brief summary of the project that outlines what it is, what it is for, what are its features, and what are the end results. E- SolarConnect is an online platform through which people (B2C) and businesses (B2B) can purchase solar products and services. The platform will enable users to purchase products, request quotes, and schedule installations. The platform will make customers more convenient, efficient, and accelerate the shift towards clean and alternative energies.

Key words: Solar Energy, Clean energy, Green Technology, Solar Panels, Business To Customers, Business To Business, Quotation and Bulk Orders

INTRODUCTION

This provides the background, problem statement, and project objectives.

The following are 10 other energy sources: Solar-clean, sustainable and cost-effective. Customers are having trouble finding

reputable solar products, monitoring prices and scheduling installations.E-SolarConnect aims to bridge these gaps by providing a web-based platform for B2C & B2B transactions that not only fulfil customer's needs by offering extensive details regarding products but also helps with ordering and installation. Not only does it increase customer convenience but also operational efficiency for the company.

LITERATURE SURVEY

It also examines the existing systems, gaps in the Dr.

market, and research

- Currently, there are a number of features in solar energy platforms, but they are mostly focused on product display, with little or no inclusion of B2B or B2C features. Most of these sites do not have cost calculators, bulk orders, or installation booking features.
- Research suggests that having a digital platform for ordering and tracking can increase satisfaction and usage of a product.
- E-SolarConnect improves on these systems, as it brings administration management, customer interaction, and product management into a single platform.

PROPOSED METHODOLOGY

Explains the strategy and methods used to accomplish the project's goals.

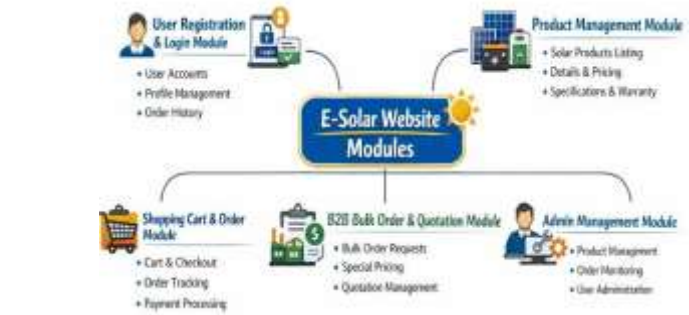
User accounts, product catalogs, shopping carts, B2B bulk orders, and administrative tasks are all managed by the system. Registration and login for B2C and B2B clients are important features. Product management which includes comprehensive pricing and specifications. Individual users' shopping carts and orders. B2B requests for quotes and bulk orders. A dashboard for managing orders, products, and users. A solar energy calculator to estimate the

number of panels required is optional.

ARCHITECTURE DIAGRAM

The system's components and data flow are depicted visually as follows:

- The frontend is interacted with by users.
- The backend server receives requests from the frontend.
- The database is used to store and retrieves data.
- Orders, products, and users are managed by the admin module.



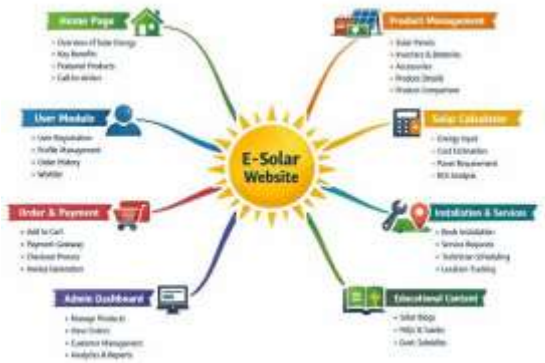


Fig 1: Architecture Diagram of E-Solar Web

DIFFERENT STAGES AND APPROACHES

Explanation of the different phases of the project.

Analysis

The use of research and surveys to determine the requirements of both individual and corporate clients is a necessity in this phase. The requirements to be included are order placement, product browsing, bulk quotations, and login.

System Design

The design of the workflow, database structure, and user interface is included in this phase. The design should be user- friendly and flexible using flowcharts.

Growth

The growth phase involves using HTML, CSS, and JavaScript for the development of the system's frontend. PHP and Node.js are used for the backend development. Data storage is ensured using database integration with MySQL/MongoDB.

Testing

The functionality, usability, and performance of the system should be ensured during this phase. The smooth operation of all modules, including the login module, product display module, order placement module, and bulk quotations module, should be ensured.

Deployment

The maintenance of the website for updates and bug fixes is ensured using a server that supports live functionality.

MODULES

Fig 2: Modules Used In E-SolarConnect **User Registration and Login**

User Registration: The user can register their account using their information like name, email, phone number, and password, etc.

Login System: The user can securely login into their account using their own information for authentication.

Profile management: The user can edit their information like address, phone number, etc.

Order History: The user can store their order history using their order history.

Security features: This includes session management, OTP verification, and password encryption to safeguard the user information.

Product Management Module

Product Listing: In this section, various products related to solar energy, such as batteries, solar panels, inverters, etc., are listed.

Product Details: Details regarding the product, such as capacity, efficiency, cost, etc., are added here.

Filter &Search: This module enables customers to

search for products according to their prices, brand name, etc.

Stock Management: This module manages the products.

Product Comparison: This module enables customers to compare products before making a purchase

Order and Shopping Cart

Add to Cart: Customers are able to choose items and put them in their carts.

Cart Management: Cart management allows users to add or remove items and change the quantity.

Checkout Process: Order confirmation and delivery information entry are part of the checkout process.

Payment Integration: Accepts a variety of payment options, including net banking, credit/debit cards, and UPI.

Order Tracking: Order tracking allows users to monitor the status of their orders (placed, shipped, delivered).

Invoice Generation: After a purchase, a bill or receipt is generated.

B2B QUATATION AND BULK ORDERING

This module is for business clients who wish to purchase solar products in bulk quantities. They may request quotes for the products.

Administrative Management

Product Management: Products may be added, updated, or removed.

Order Monitoring: It monitors business orders as well as customer orders.

User Management: The admin has the ability to activate or deactivate user accounts.

B2B Request Handling: It allows or rejects requests for bulk orders.

Analytics & Reports: It provides information such as revenue trends, products sold, etc.

Content Management: Blogs, FAQs, offers on the site may be updated by the admin.

INPUT CODE AND IMPLEMENTATION

provides a list of the input data needed for the system to work.

- User login information (B2C/B2B)

- Product information, including name, features, cost, and pictures

- Order information (product ID, quantity, and customer details)

Implementation - Language

Front End: HTML, CSS, JavaScript Back End:

Node.js, PHP

DataBase: MySQL, MongoDB

What the system produces as a result of user actions.

- Product list with details
- Order confirmation and cart summary
- Bulk order quotation
- User management
- Order management
- Sales report management

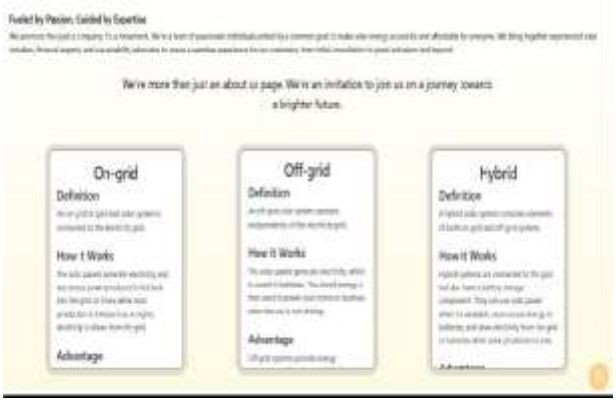
RESULTS AND DISCUSSION

Analysis of system performance and how it helps in achieving the project goals.

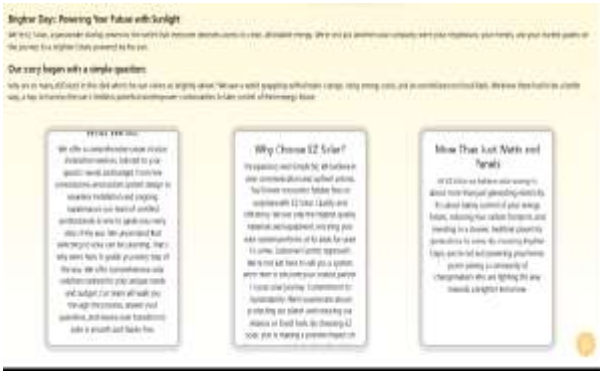
- Products can be tracked, ordered, and browsed effectively for users.
- Businesses can request bulk orders, and quotations can be provided.
- The system can be effectively managed by the administrator.
- The system helps in reducing efforts, increasing transparency, and using solar energy.

HOME PAGE

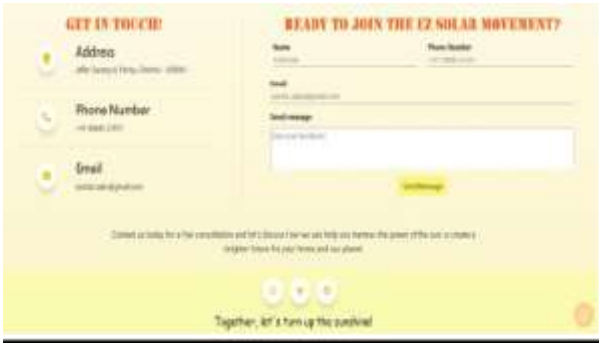
CATEGORIES PAGE



ABOUT US - PAGE



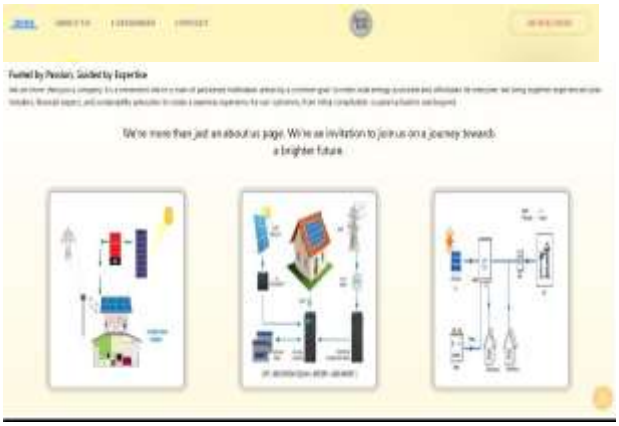
CONTACT PAGE



CONCLUSION

It summarizes the results of the project and its scope.

E-SolarConnect can provide a comprehensive digital platform for solar energy products, which can improve operational efficiency, order management, and B2B and B2C transaction management. To improve the operational efficiency of the solar energy product management, it is proposed to include solar energy calculators, mobile applications, AI chatbots, and payment gateway services.



FUTURE ENHANCEMENTS

Monitoring and Analysis of Electricity Use

The electricity consumption monitoring system can be included as a feature of the E- Solar Connect system in the future. The users can use this system to monitor the daily, weekly, and monthly usage of electricity by the user in real-time. The users can obtain all the information required about the usage of electricity by using the information collected from the smart meter or by entering the information manually.

In addition to the above, the system can analyze the information collected and provide the users with the best configuration for the solar panel to reduce the usage of the traditional sources of energy.

The graphs and dashboards can be included as the visualization tools for the system.

The predictive analytics can be used to predict the future usage of energy by the user, which can help the users to manage the energy in the best possible manner

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