

TEAM : ECOEARNING ENTHUSIAST

PREDICTION OF SOLAR POWER GENERATION BASED ON WEATHER FORECAST

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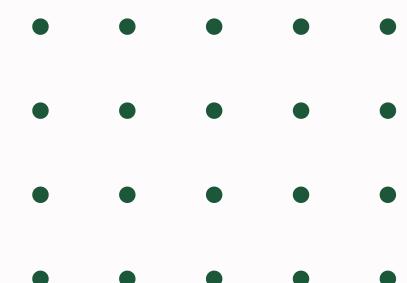




Problem Statement

Addressing the Solar Savings Blindspot:

Our objective is to **combat the lack of awareness** among homeowners about the **substantial financial benefits** attainable through the **installation of solar panels**. By highlighting the potential for **significant cost savings** and even **earnings**, we aim to bridge the information gap and encourage wider adoption of solar energy solutions, paving the way for a more **sustainable** and **economically advantageous future** for everyone.

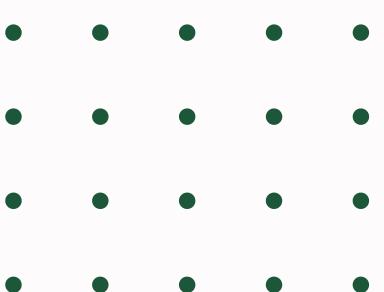


A fresh approach to the concept

Many countries and regions have implemented policies and regulations that allow individuals and businesses to sell excess power generated from solar panels back to the electricity grid. This process is commonly referred to as "net metering" or "feed-in tariff" (FiT) programs.

This rate is often higher than the retail price of electricity, providing an incentive for people to invest in renewable energy systems.

Hence, we propose this project to encourage people to use solar panels by helping them figure out how much energy would be generated if they implant solar panels in their region. The information would be collected using geolocation and then model building will happen.



What we offer

Select your location



Select the location of the solar panels by pinning it in on a map, giving your address or sharing your current location.
Also specify the available space you have for solar panels.

ML-model calculations



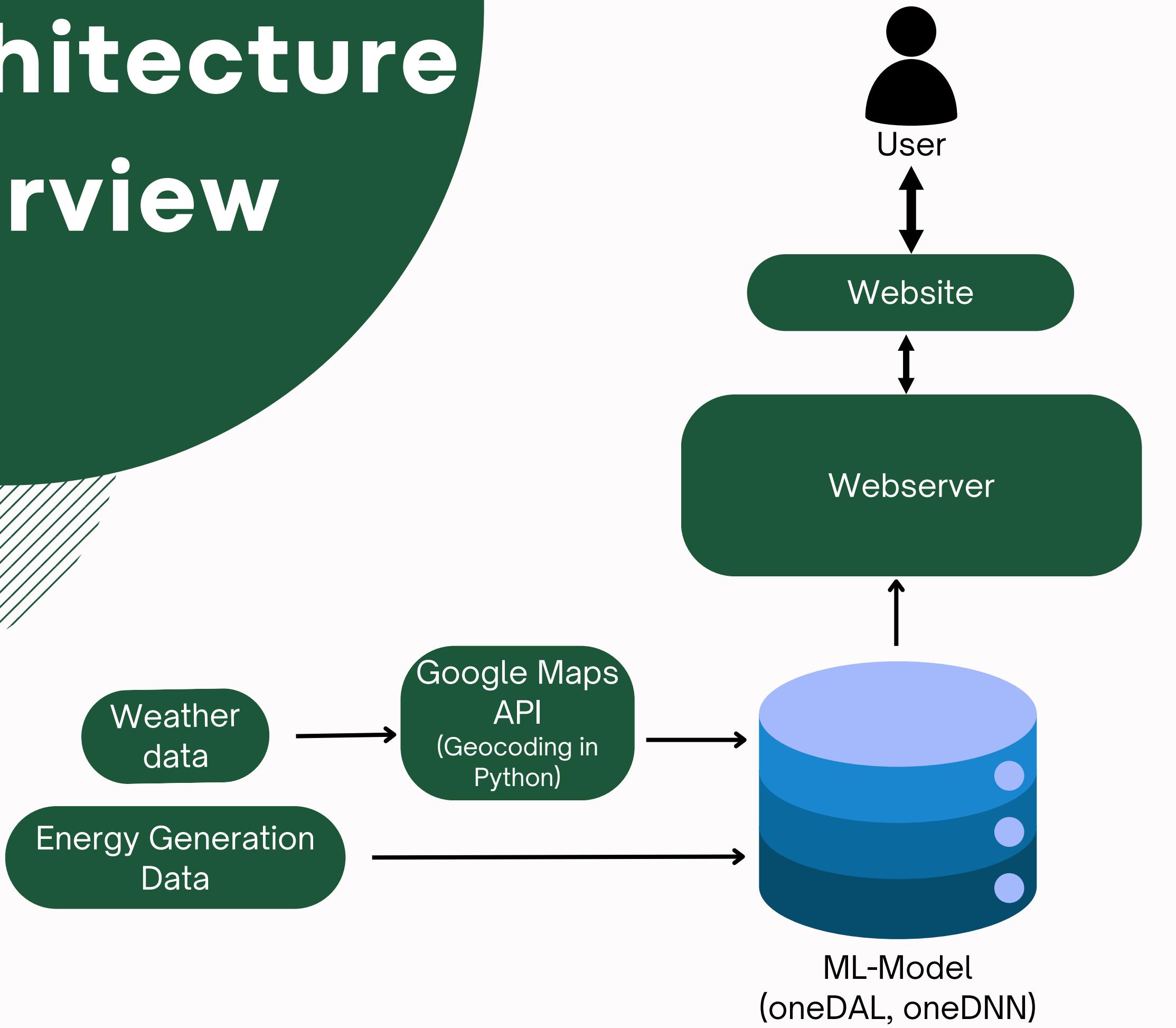
Our AI-Model will then calculate precise data on how much energy solar panels at your locations will produce.

See your potential savings



Our website will show you how much you can save and earn by installing solar panels at your location. The data is presented in a way that is easy to understand and helps you recognize the financial potential of solar energy.

Architecture Overview



LIST OF ONEAPI TOOLKIT USED

One DAL

oneAPI Data Analytics Library (oneDAL) is a powerful machine learning library that helps you accelerate big data analysis at all stages: preprocessing, transformation, analysis, modeling, validation, and decision making. The library implements classical machine learning algorithms. The boost in their performance is achieved by leveraging the capabilities of Intel® hardware.

One DNN

oneAPI Deep Neural Network Library (oneDNN) is an open-source cross-platform performance library of basic building blocks for deep learning applications. The library is optimized for Intel Architecture Processors, Intel Processor Graphics and Xe Architecture graphics.



FEATURES

GPS Location
Retrieval

Weather Data
Retrieval

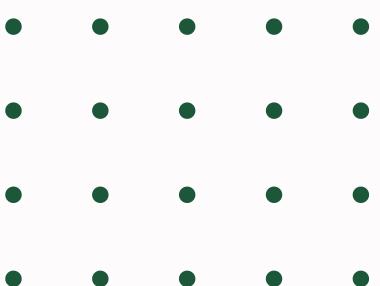
Prediction and
Visualization

Solar Panel
Specifications

TECHNOLOGIES USED:

Frontend:

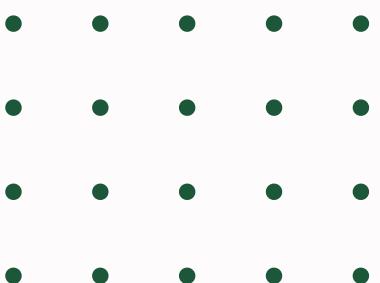
1. ***HTML, CSS, and JavaScript***: These are the fundamental languages for building the structure, design, and interactivity of the website.
2. ***Leaflet or Google Maps API***: To Implement interactive maps to visualize the user's GPS location and provide an intuitive interface for location input.
3. ***Charting Libraries***: To Integrate libraries like Chart.js or D3.js, to create informative visualizations and graphs showcasing weather trends and solar panel feasibility.



TECHNOLOGIES USED:

Backend:

1. ***Python or Node.js***
2. ***Web Framework***: Flask / Streamlit
3. ***Node.js***
4. ***Weather API***:
5. ***Geolocation API***:
6. ***Machine Learning Libraries***:



ESTIMATED COST

- ***Cloud Hosting:***

For a basic setup, the monthly cost could start at around \$20 - \$50, but it could increase as our user base and resource needs grow.

- ***Domain and SSL Certificate:***

Domain Name: Costs around \$10 - \$20 per year for registering a domain name.

SSL Certificate: Costs around \$50 - \$150 per year for securing our website with SSL.

