TUM. AI: Genistat Solar Challenge

Project: **Solar Opposites**

How do we maximize
the utility of solar resources?

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TUM School of Engineering

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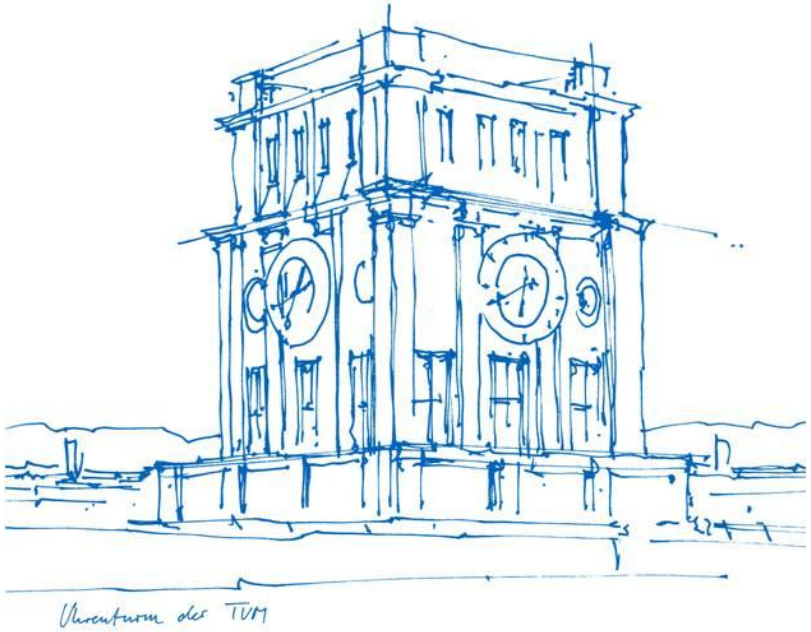

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1. Motivation

With global warming accelerating, energy crisis is at risk and needs to be addressed!

Iceberg (Source: National Geographic Society)

Solar Panel on the roof (Source: AE Solar)

2. Problem Set

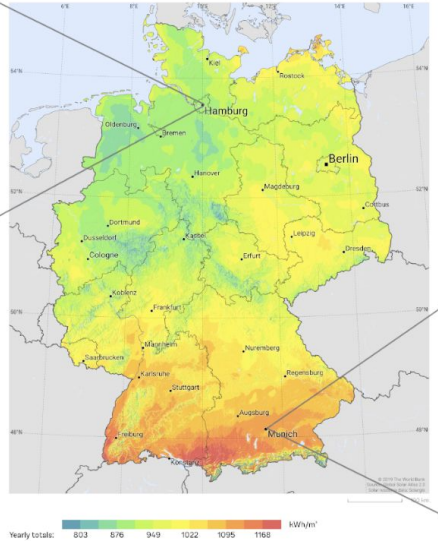
How do we maximize the utility of solar resources?

✔ Evaluate and prioritize the suitability of houses for installing solar panels

Affecting Factors:

- Geographic Location
- Panel Efficiency
- Roof Size

City: Hamburg
Loc: 53.6025962 / 10.0811647
Area: 560m^2
Sun Radiation: 1180 kWh/m^2
Azimuth: 28 Degrees
Efficiency: 6.1/10
Electric Potential: 80 MWh



City: Munich
Loc: 48.1068726 / 11.5898979
Area: 450m^2
Sun Radiation: 1311 kWh/m^2
Azimuth: 81 Degrees
Efficiency: 9.8/10
Electric Potential: 115 MWh

Power Energy Map (Source: Github-tum.ai-solar)

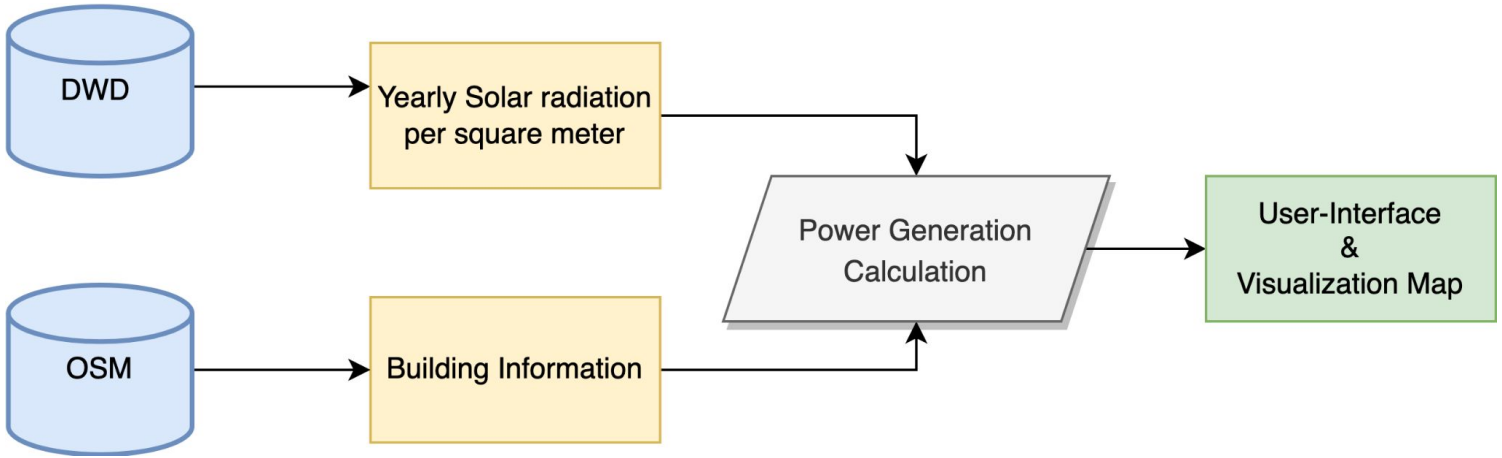
3. Solution

User-friendly Interaction:
An interface that enables address input for power calculation

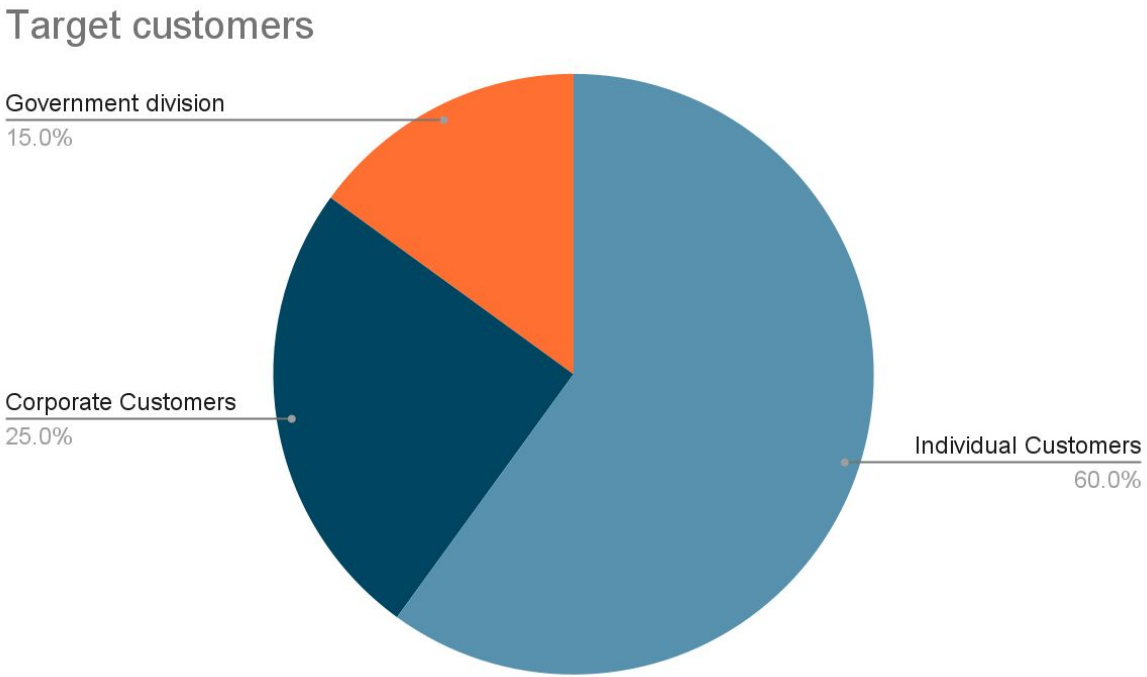
Map Visualization:
Reference for suggestions regarding solar infrastructure investment

4. Technical Implementation

The *'Solar Opposites'* Project*:*



5. Business Model



6. Further Improvement

Azure hosting	Host the back-end in database	
Germany-wide dataset	Extend from Bremen to germany for energy generation calculation	
AI models implementation	i.e. Roof generation (Image segmentation: U-net, Res-Net etc)	

Prototype Presentation