Project Purpose

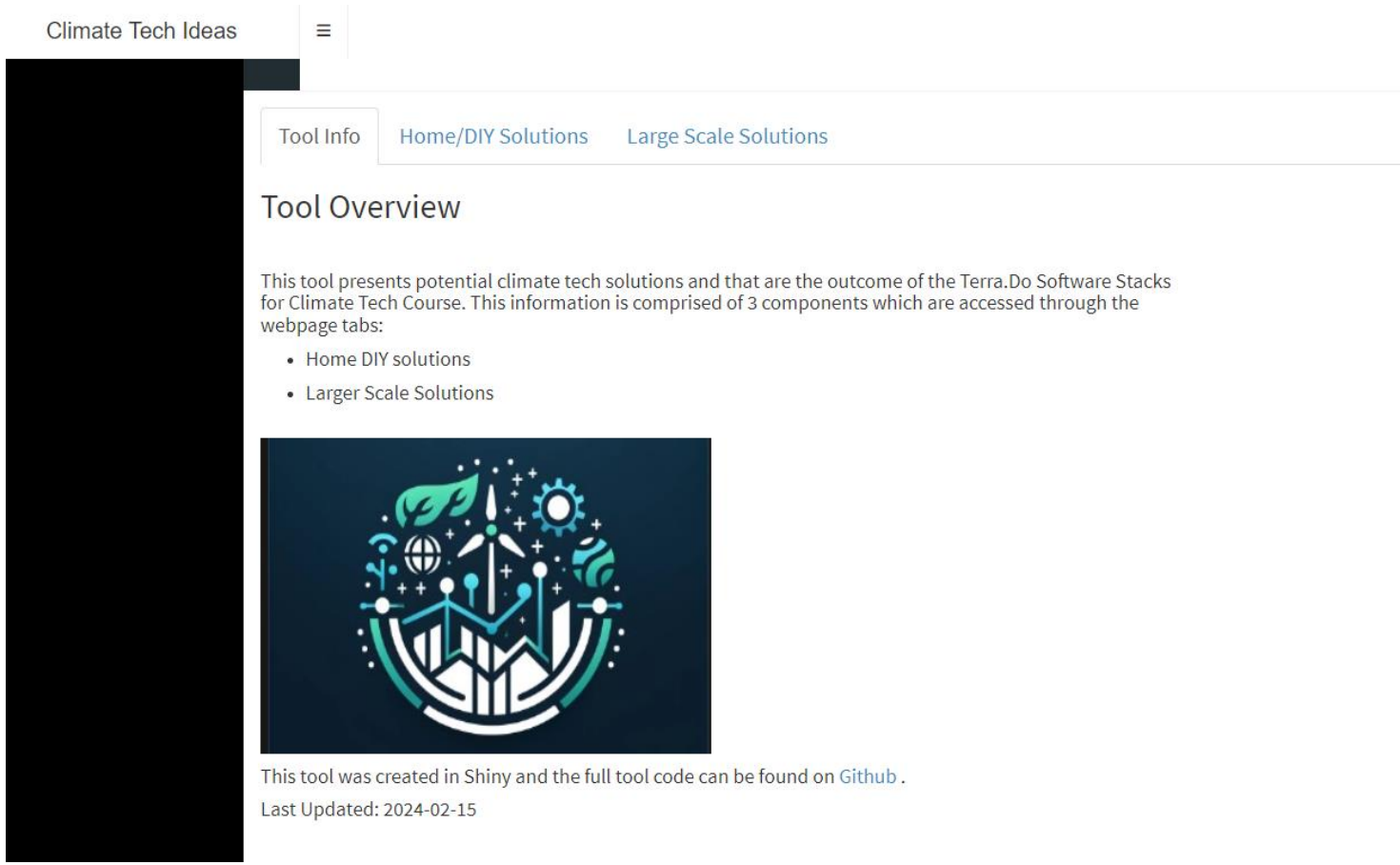
Create something useful or interesting based upon skills I learned in this class that could be applied to my current job or that could spawn an unrelated side project.

My interests/skills

- Data analysis/modeling for transportation planning / urban planning
- Home renovation DIYer
- Strong R programming skills, average python programmer
- Creating web applications in Shiny

Climate Tech Project

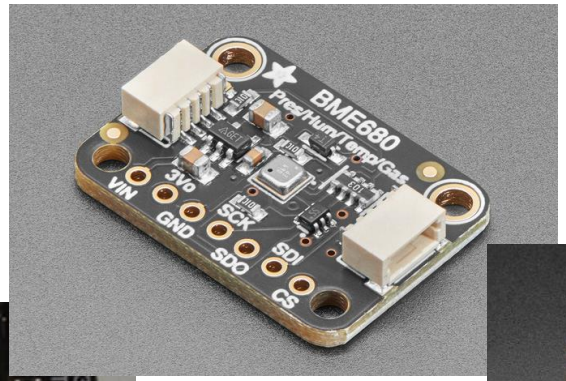
- A web application that explores and visualizes:
  1) sensor and home energy model data
  2) electric vehicle charging data

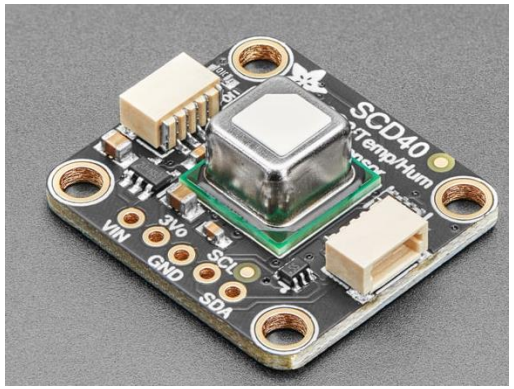


Tech Stack

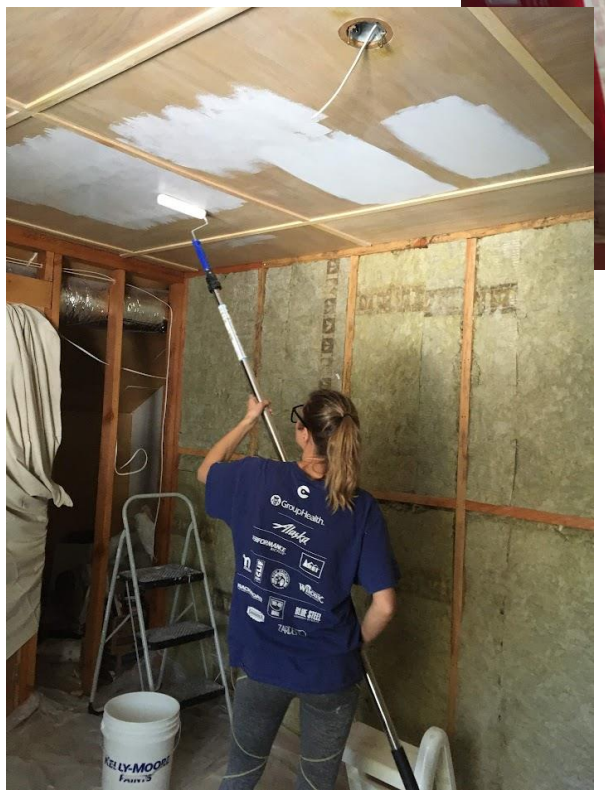
Home DIY Climate Solutions

Open-Meteo





Home DIY Climate Solutions



Electric Vehicle Planning

What are potential impacts of new charging stations in likely locations?

National Electric Vehicle Infrastructure Formula Program

	FAST Act (extension)	Bipartisan Infrastructure Law (BIL)				
Fiscal year (FY)	2021	2022	2023	2024	2025	2026
Advance appropriation (General Fund)	---	$1.000 B	$1.000 B	$1.000 B	$1.000 B	$1.000 B

- **Medium and Heavy Duty Infrastructure - https://gis.data.ca.gov/datasets/CAEnergy::medium-and-heavy-duty-infrastructure/about**
- **Electric Fuel Corridor Groups (Updated December 2023) - https://gis.data.ca.gov/datasets/CAEnergy::electric-fuel-corridor-groups-updated-december-2023/about**
- **California Electric Balancing Authority Areas - https://gis.data.ca.gov/datasets/CAEnergy::california-electric-balancing-authority-areas/about**
- **DC fast charging stations that do not meet NEVI requirements but within 1-mile of a corridor - https://gis.data.ca.gov/datasets/CAEnergy::dc-fast-charging-stations-that-do-not-meet-nevi-requirements-but-within-1-mile-of-a-corridor-updated-october-2023/about**
- **Stations that meet NEVI requirements - https://gis.data.ca.gov/datasets/CAEnergy::stations-that-meet-nevi-requirements-october-2023/about**
- **Traffic Volumes AADT - https://gis.data.ca.gov/datasets/d8833219913c44358f2a9a71bda57f76_0/about**
- **Commute Patterns – Census LEHD LODES – origin destination of commutes and home locations at the census tract level. - https://lehd.ces.census.gov/data/**

Future Work

Home/DIY

- Connect app directly to live sensor database
- Additional user defined inputs connecting to backend data
  - Locations (lat/lng), all home energy model parameters
- Migrate the entire workflow to either all python or all R
- Integrate the sensor data directly into the home energy model

EV analysis

- Connect all the data sources into a coherent analysis product

Interested in collaborating on R/Python Shiny apps for:

- Home energy market
- Transportation electrification market
- Sauna market (custom sensors and sauna accessories)
- Others???

Contact Me

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