CSE 583 Presentation:

where2charge

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Description

We developed a charging recommendation tool, which is different from what is available

COMPONENTS:

- Back end: data analysis and suggesting the best charging stations
- Front end: an interactive map where user can get reliable EVCS suggestions and their routes

USERS:

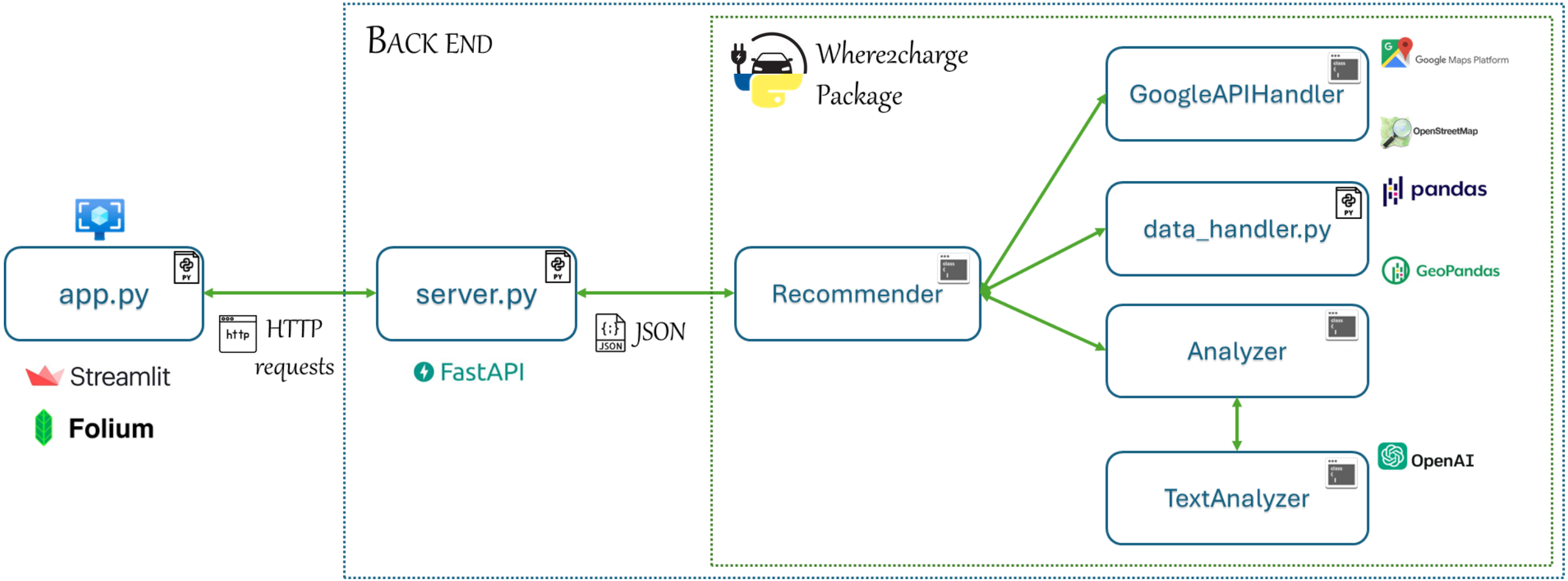
- EV drivers
- Policymakers
- Researchers

Data

NAME	INFORMATION	PURPOSE	SOURCE
Charging Station	Charging station location, type, and number of plugs in each station	Finding plugs counts and location	U.S. DEPARTMENT OF ENERGY
EV adoption	Registered EVs by census tract	Finding number of registered EVs	data.wa.gov the official Washington state open data portal
Census Tracts	Census tracts' geographical information	Mapping the corresponding census tract for each plug	King County

Project Structure and Technologies

- Client-server architecture
- Mix of procedural and object-oriented programming



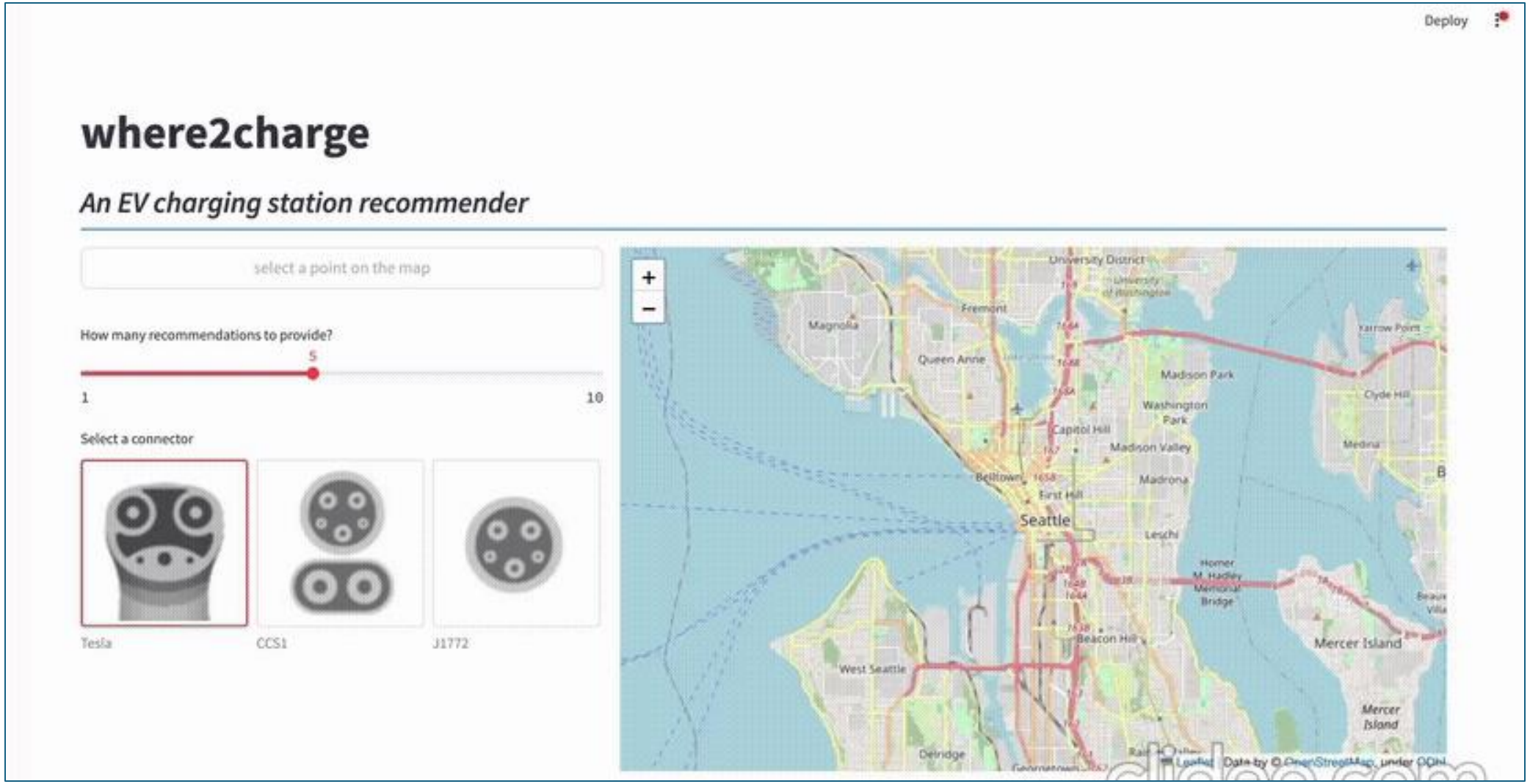
Project deliveries

A PACKAGE

AN API

AN APP

Application Demo



Challenges

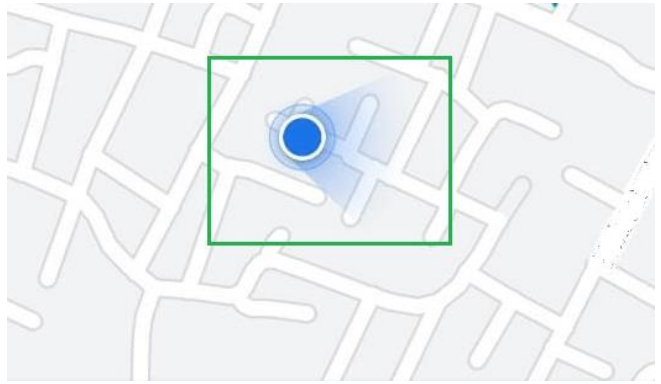
Being Fast and Reliable:

- We needed to speed up data query and processing.
  - Moved from OSMNX to googlemaps package
- Google Place API is not providing all possible information of EVCSs
- DOE data is not comprehensive enough to match Google queries
- To transfer data from logic to UI, we needed to use JSON format
- Streamlit does not render immediately after our clicks
- Could not perform continuous integration (CI) for security reasons
- Oop

Future work

Deployment:

- Make UI more user friendly and smartphone compatible
- Implement live location detection
- Implement feedback and user data collection functions
- Deploy on cloud (AWS)



Data analysis:

- Use more data for decision making
- Collect data from actual users and fine tune LLM