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Embedded Systems

Repository Links
1. Telemetry
    a. https://github.com/weatherman-org/telemetry
2. Dashboard
    a. https://github.com/weatherman-org/dashboard
3. Model
    a. https://github.com/weatherman-org/model
4. Deployment (Houses complete deployment from scratch with optional building)
    a. https://github.com/weatherman-org/deployment

Building the Project
1. git clone https://github.com/weatherman-org/deployment
2. make build_deploy

Model Training and Details
Dataset API: https://archive-api.open-meteo.com/v1/archive
API Params:

```
{
        "latitude": 12.9184,
        "longitude": 79.1325,
        "start_date": "2003-01-01",
        "end_date": "2024-01-01",
        "hourly":
"temperature_2m,relative_humidity_2m,rain,surface_pressure,wind_speed_100m,wind_dir
ection_100m",
        "timezone": "auto",
        "format": "csv"
    }
```

Dataset Example Rows:

	temperature	humidity	water_amount	pressure	wind_speed
time					
2003-01-06	23.980357	69.821429	0.0	990.826786	14.098214
2003-01-07	23.845833	70.880952	0.0	991.144643	14.376190
2003-01-08	23.695238	71.130952	0.0	991.263690	14.573214
2003-01-09	23.708929	70.607143	0.0	991.379167	14.778571
2003-01-10	23.615476	69.827381	0.0	991.552381	14.515476
2003-01-11	23.390476	69.964286	0.0	991.717262	14.530357
2003-01-12	23.195238	70.083333	0.0	991.696429	14.478571
2003-01-13	23.094643	69.702381	0.0	991.708929	15.035119
2003-01-14	22.924405	69.821429	0.0	991.916667	16.200000
2003-01-15	22.843452	69.863095	0.0	991.939286	16.558333

7-Day Rolling Averages of Dataset:
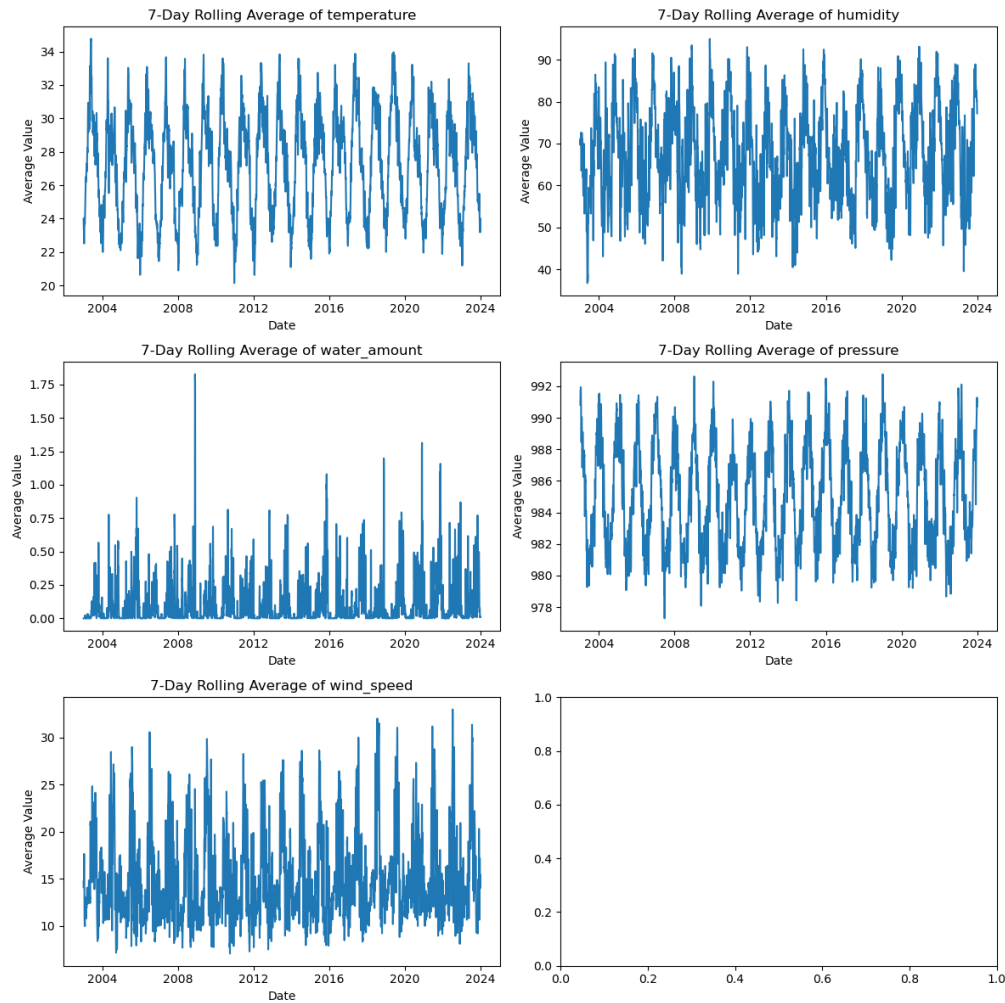
Model Prediction (Orange) vs Actual (Blue):

Random Forest Predictions vs Actual
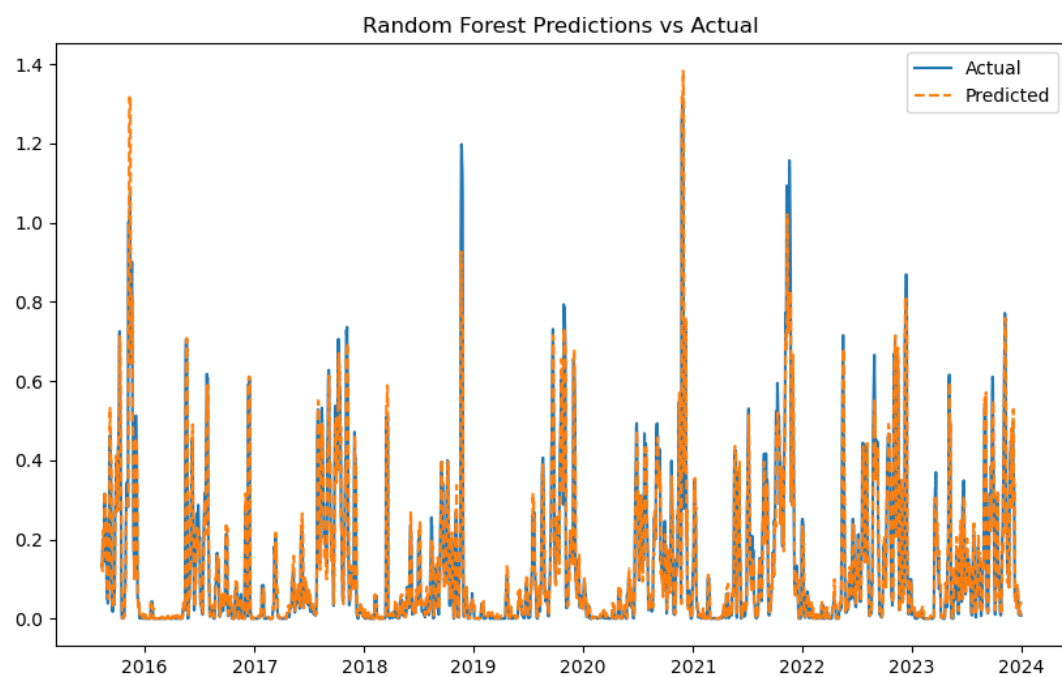
Dashboard Views
Prediction Page
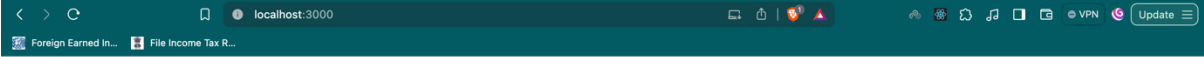
Prediction for water is 0.03 millimeters.

Data History Page (Top)
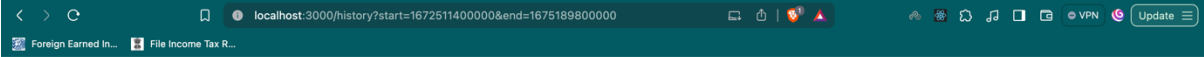
Select Date Range

Start 01/01/2023   End 02/01/2023
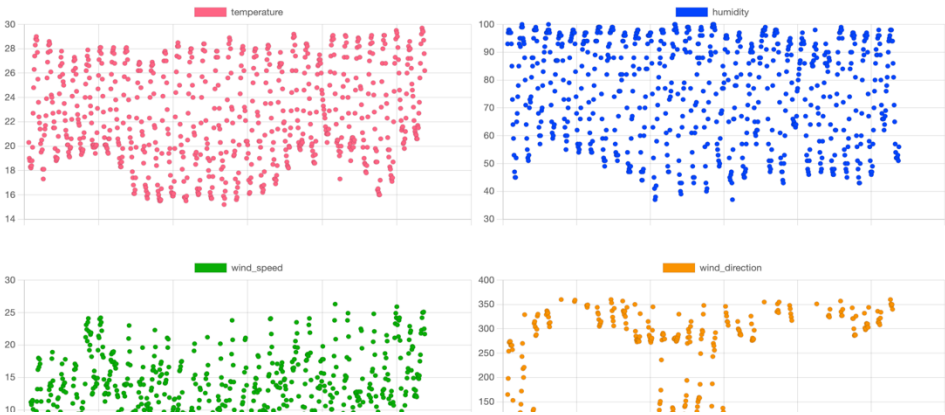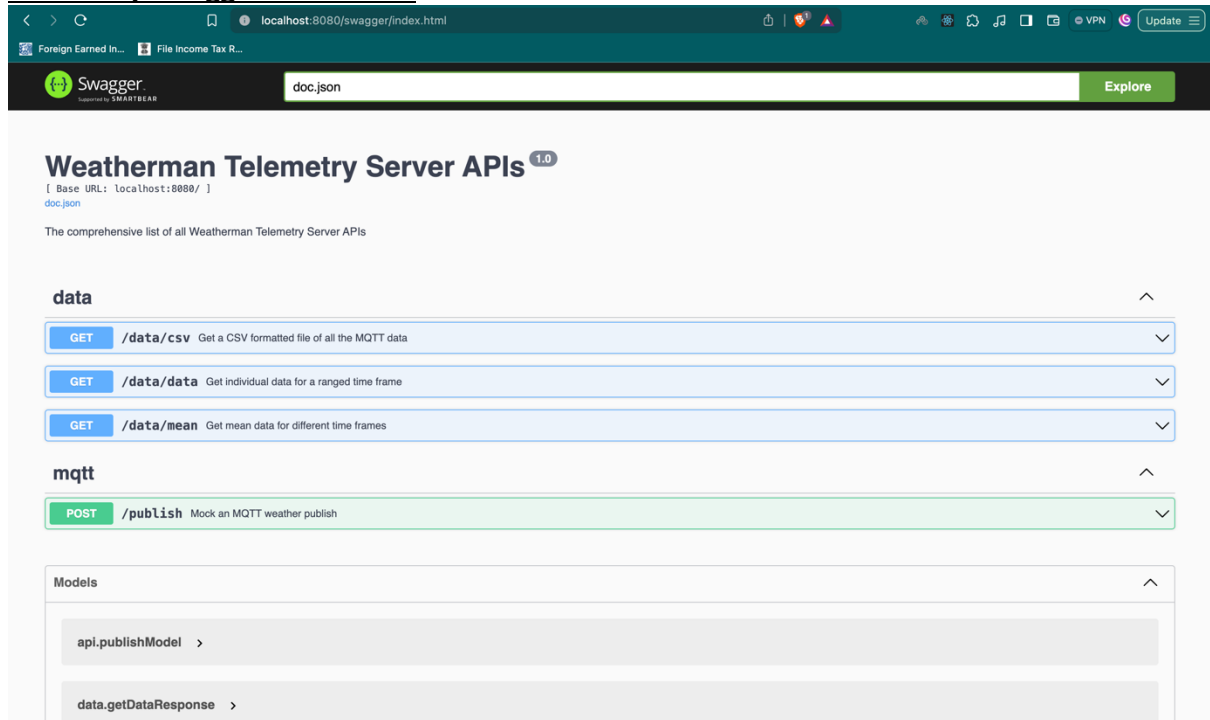
Data History Page (Bottom)

Specific Graph Page
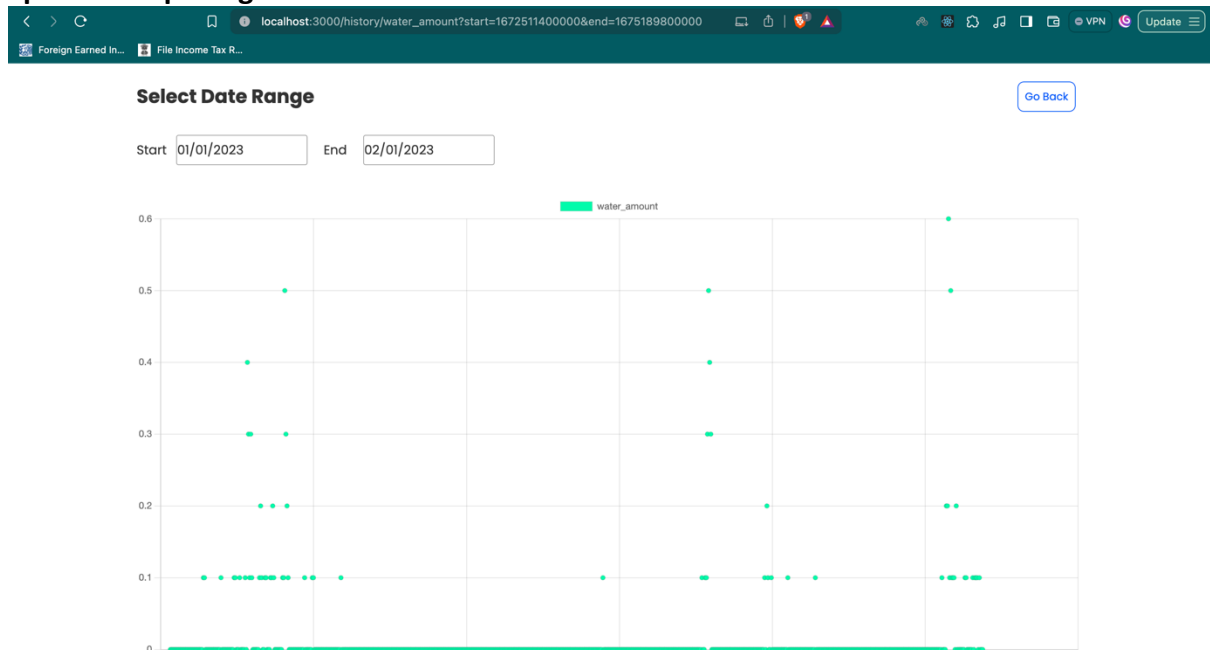
Telemetry Swagger Dashboard

Model Swagger Dashboard