HiSim - Household Infrastructure and Building Simulator

HiSim is a Python package for simulation and analysis of household scenarios and building systems using modern components as alternative to fossil fuel based ones. This package integrates load profiles generation of electricity consumption, heating demand, electricity generation, and strategies of smart strategies of modern components, such as heat pump, battery, electric vehicle or thermal energy storage.

HiSim is a package under development by Forschungszentrum Jülich. For detailed documentation, please access ReadTheDocs or the latest version of this this repository.

General information

This very early version of HiSim was used in the project PIEG-Strom to simulate results for the VDI 4657-3 guideline.

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For this work weather data is based on data from "German Weather Service (Deutscher Wetterdienst-DWD)"

Deutscher Wetterdienst
Wetter und Klima aus einer Hand

Usage to reproduce simulation results

Clone repository

To clone this repository, enter the following command to your terminal:

```
git clone https://github.com/FZJ-IEK3-VSA/HiSim/tree/pieg-strom-cleanup.git
```

Virtual Environment

Before installing `hisim`, it is recommended to set up a python virtual environment. Let `hisimvenv` be the name of virtual environment to be created. For Windows users, setting the virtual environment in the path `\hisim` is done with the command line:

```
python -m venv hisimvenv
```

After its creation, the virtual environment can be activated in the same directory:

```
hisimvenv\Scripts\activate
```

For Linux/Mac users, the virtual environment is set up and activated as follows:

```
virtual hisimvenv
source hisimvenv/bin/activate
```

Alternatively, Anaconda can be used to set up and activate the virtual environment:

```
conda create -n hisimvenv python=3.9
conda activate hisimvenv
```

With the successful activation, `hisim` is ready to be locally installed.

Install package

After setting up the virtual environment, install the package to your local libraries:

```
pip install -e .
```

Run simulations files from PIEG-Strom project

Run the python interpreter in the `hisim/examples` directory with the following command:

```
python vdi4657_chapter_9-2-3-1.py
```

The results are stored under directory `hisim/examples/`.

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