SEADS

Smart Energy Analytics Disaggregation Systems

SEADS

- What is SEAD?
  - Measures the I-V at the home power interface
  - Has a database of all appliance signatures
  - Detects what appliances are on based on those signatures
- What are SEAD Goals?
  - To Monitor and Control Microgrid(An Islandable part of grid)
  - Home Automation and Smart Home
  - Billing
  - Anomaly Detection

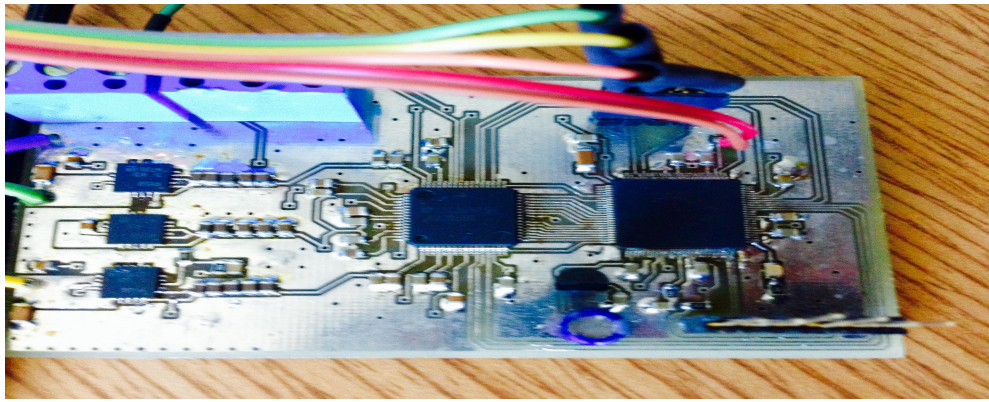
Project Categories

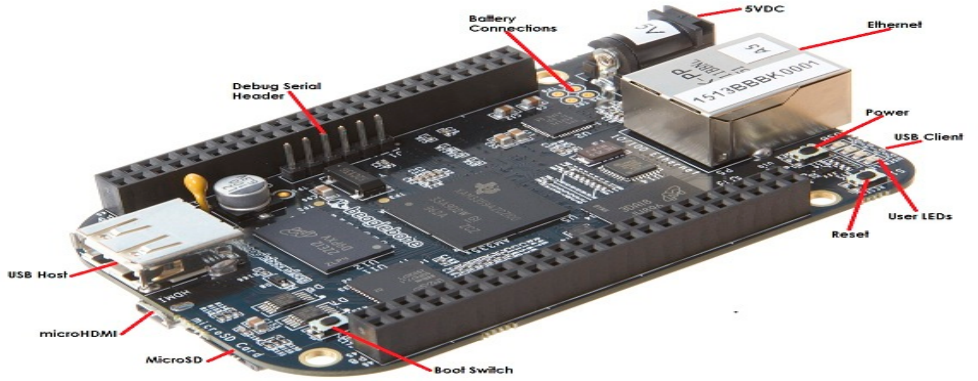
- **Front End:** UI and interface
- **Database:** Querying a signal from the data base and sort the signals based on similarities
- **Classification Data Analysis/Data Collection:** Data classification and visualization.

SEADS

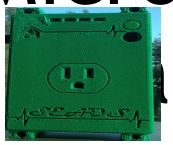
SEAD Plug

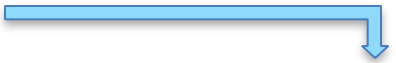
SEAD Panel

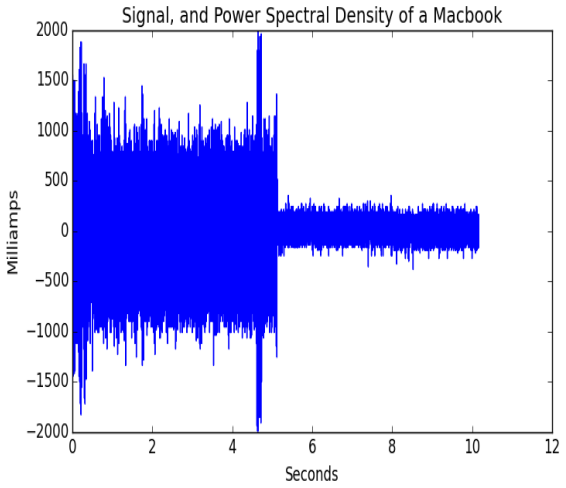


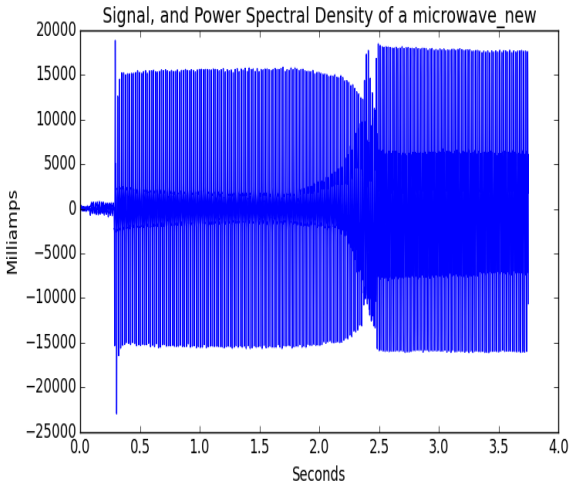


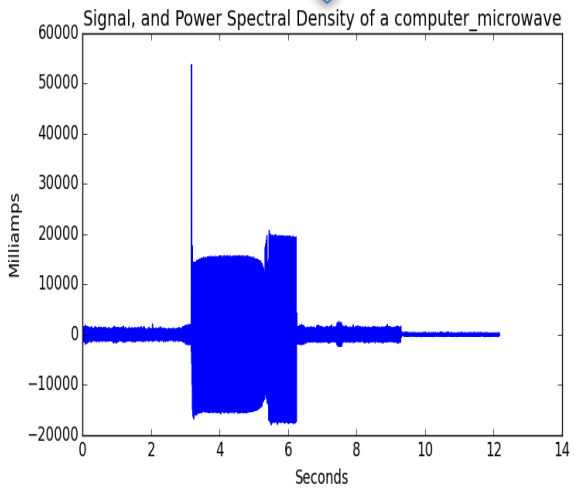
Computer + Microwave Current Harmonics SEAD Plug

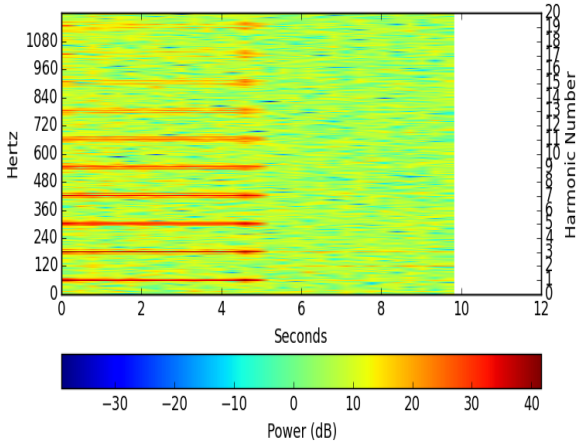


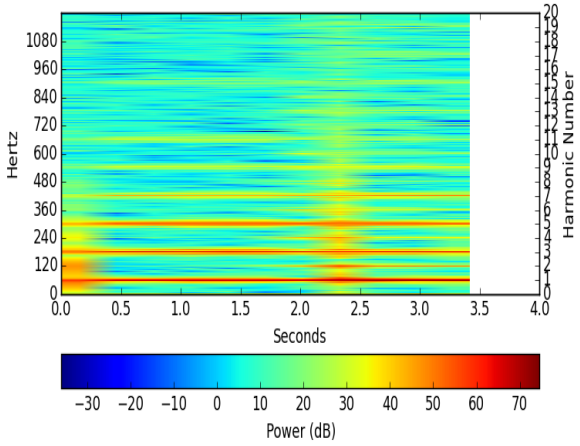


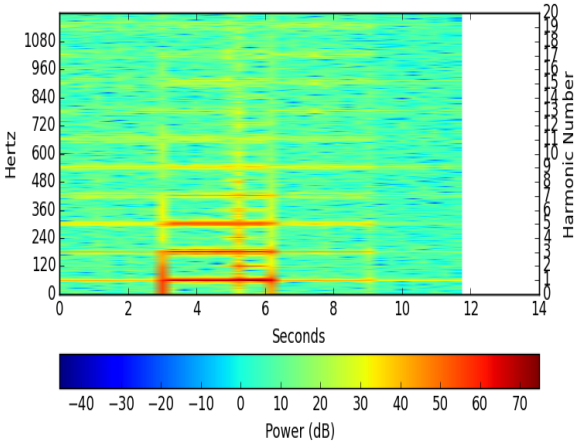




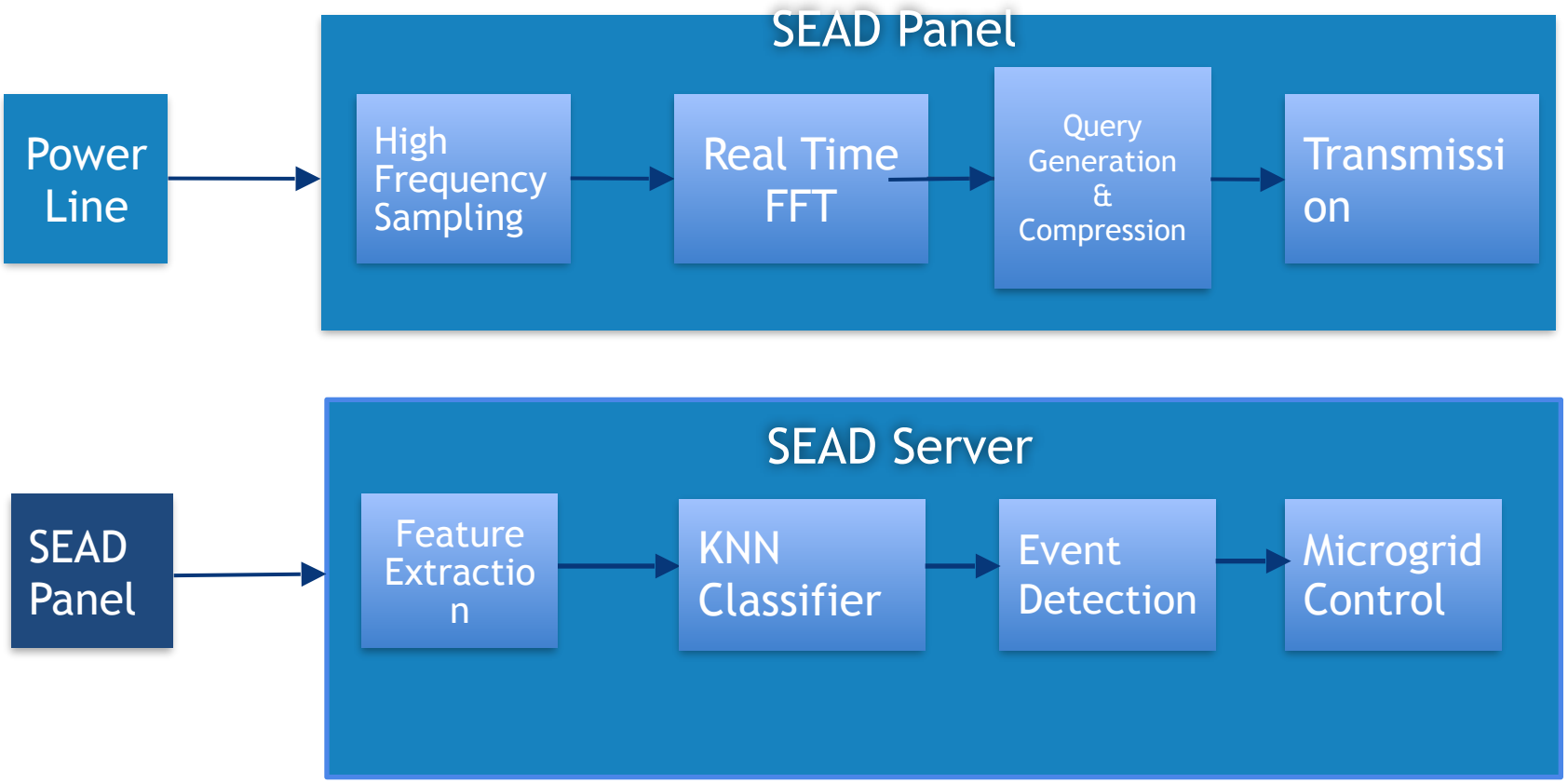






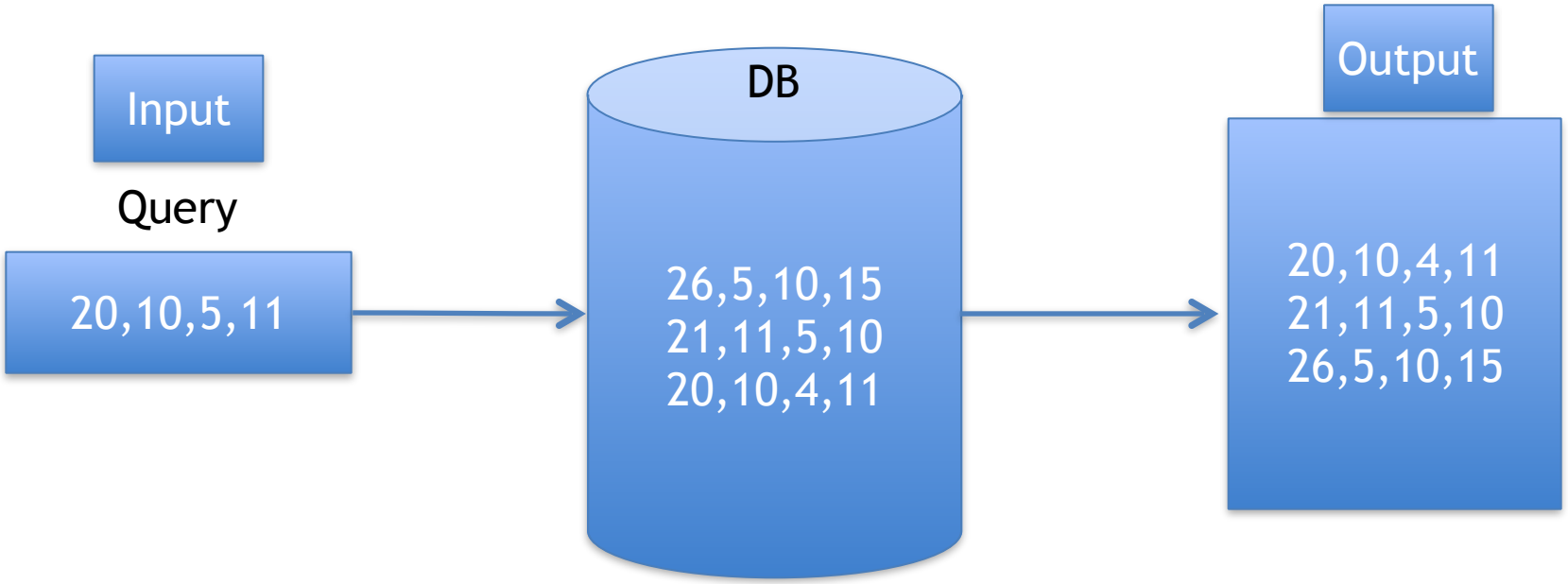


SEAD System Architecture



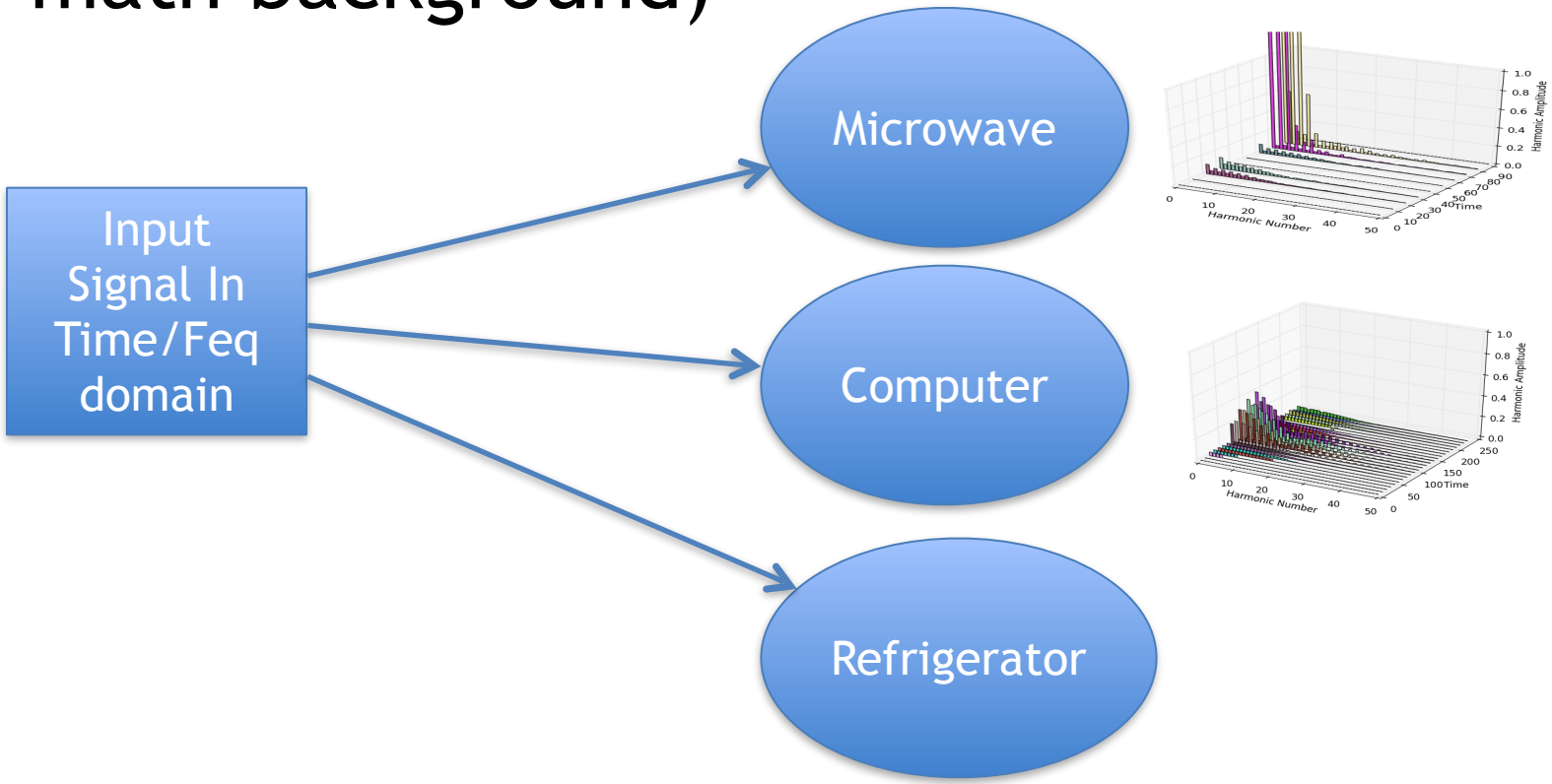
Database

- Reimplement DB API with new database. (Currently in MySQL)
- Querying Signals from DB



Classification and Data Collection

- Data collection and analysis using tools such as Weka, matlab, python (Good math background)



User Interface

- http://www.sead.systems/ is currently is made in PHP+MYSQL.
- Going to be rewritten in Python.
- Real-time Visualization of Data in a user-friendly manner
- Possibly making a Desktop App