

Disaggregated End-Use Energy Sensing for the Smart Grid

Nishad Gothoskar
ngothosk@andrew.cmu.edu

1: Summary

This article provides a full survey of energy disaggregation. It first gives us insight into what exactly it is. Then it goes on to tell us about various techniques of actually doing so and their pros and cons. Then it details what the "value of disaggregated data is". I enjoyed this paper because it relates heavily to my final project. It also gives me more justification for why my project is relevant

The value of disaggregated data is to give users more insight into their energy usage. To see where exactly the energy is going into and what the large and small consumers are. Because the truth is, most people don't actually know where the energy in their home is going. Having this detailed summary of usage can help people make changes to their behavior. Blindly saying "you're using too much" won't help users change. But instead telling them where they are using too much energy and other more precise metrics can help them actually know how and in which ways to change their usage.

They can also give predictions and suggestions of which devices to shut off.

Next, they talk about how they go about disaggregation. The first is the most obvious. Have sensors at each device. This is quite costly but is clearly the easiest and most fool proof solutions. The next is single point sensing where you get only the main powerline measurement. This kind of disaggregation is the hardest because it involves alot of signal processing and analysis. And its not entirely accurate. But what they do look it as things like current consumption, startup characteristics, voltage signatures, and looking for noise patterns.

2: Strengths

- Thorough coverage of the topic
- Insight into various techniques

3: Weaknesses

- No math (can't help me exactly with my project)

4: Future Directions

- Apply this sensing technique to other realms