Context Awareness in Smart Home Devices
Smart Thermostats

- What’s a thermostat?
- What’s a smart thermostat?
Google Nest

- Schedule and motion sensing as context
- Nest learns your schedule and automates the room temperature
Honeywell Lyric

- Location as context
- Lyric changes the home temperature based on geofencing
Open Discussion

- Which system do you think is better and why?
- What do you think could be improved about either system?
Lyric Limitations

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  - especially problematic when you have elderly people or kids in the house without smartphones
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- Geofencing doesn’t work unless you go far away enough from your home
Nest Limitations

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- If you have visitors, your schedule might get messy
- Nest needs to be installed at a location that you pass by often
Demo

Alexa + Smart Switch + Lamp
How does it work?
Questions?
Nest leaf

Using Water leak detectors sensors to adjust temperature in different places in the house, to get more context

People wanting cooling to happen faster set the temperature way low than they really desire. E.g. i want 70, but i’ll set the cooling to 64 thinking it’ll cool faster. How does nest and lyric handle this case?
Nest features

- **Auto-Away** – the Google Nest senses when you’ve left the house and automatically adjusts the temperature for energy efficiency.
- **Sunblock** – the Nest has a feature where it detects direct sunlight that is shining on it and adapts its input accordingly. Simply put, it doesn’t bite-off on a bit of sunlight. Some thermostats that get direct sunlight will kick your air conditioner on because it heats up and thinks it’s hotter than it actually is – the Nest, however, will not.
- **The Nest ‘Leaf’** – the leaf symbol appears when the Nest senses that the desired temperature setting that you have is an ‘energy efficient temperature’ based on your systems requirements to maintain it.
- **Time-to-Temperature** – the Nest displays the estimated time that your system will take to reach your desired temperature.
- **Airwave** – one of my favorite features, many people don’t realize that your ideal temperature depends on the humidity level as well as temperature because high humidity makes you feel hotter than you actually are. The Nest features a system that adjusts your temperature accordingly based on humidity levels. This might not matter much in Santa Clarita, but it matters a whole lot if you live in Miami, Florida.
- **Cool-to-Dry** – another useful feature if you live in a humid area, this Nest feature cools your house as necessary if humidity levels get too high (your air conditioner decreases humidity naturally as it runs).