IOT ANALYTICS

POWER MANAGEMENT IN SMART HOMES

Kick Off Meeting

Aline Barbosa Alves

2019-09-27

Presentation Overview

Topics to Discuss

1. What is sub-metering?
2. Why is it important?
3. About the project
4. About the data
5. Data management
6. Statistics
7. Recommendations
8. Next steps

What is sub-metering?

Explaining the context

Sub-meters track the electricity usage in real time allowing to send the information directly to the utility company. Implementing sub-metering allows measurement of individual unit consumption, and allows clients to be billed for their own consumption. This information is used to monitor and manage the electricity usage.

Why use sub-meters?

Advantages of it

TRANSPARENT INFORMATION

Get accurate and detailed information to help clients to understand, monitor and conserve.

CONTROL OF ELECTRICITY

Clients pay only for what use and see the direct financial benefits of reducing your consumption.

HELPS THE ENVIRONMENT

Beneficial for the environment and energy companies as less energy is wasted and less energy is consumed.

SUB-METERING CAN REDUCE ELECTRICITY CONSUMPTION BY UP TO

25%

70%

OF RESIDENTS ARE BENEFITED

IOT ANALYTICS

About the project

Develop analytics for a set of electrical sub-metering devices used for power management in Smart Homes. Main goal of offering highly efficient Smart Homes that providing owners with power usage analytics.

About the data

- One-minute sampling rate over
- From 12-2006 to 11-2010
- Sceaux - France
- Variables:
  - Total power
  - Voltage
  - Current
  - Date / Time
  - 3 sub-meterings

Measures

The measures from variables are different so, first, we had to choose the best one and transform others.

Missing values

Nearly 1,25% of the rows of the dataset contains some missing values in the measurements.

Data management

Security

aws

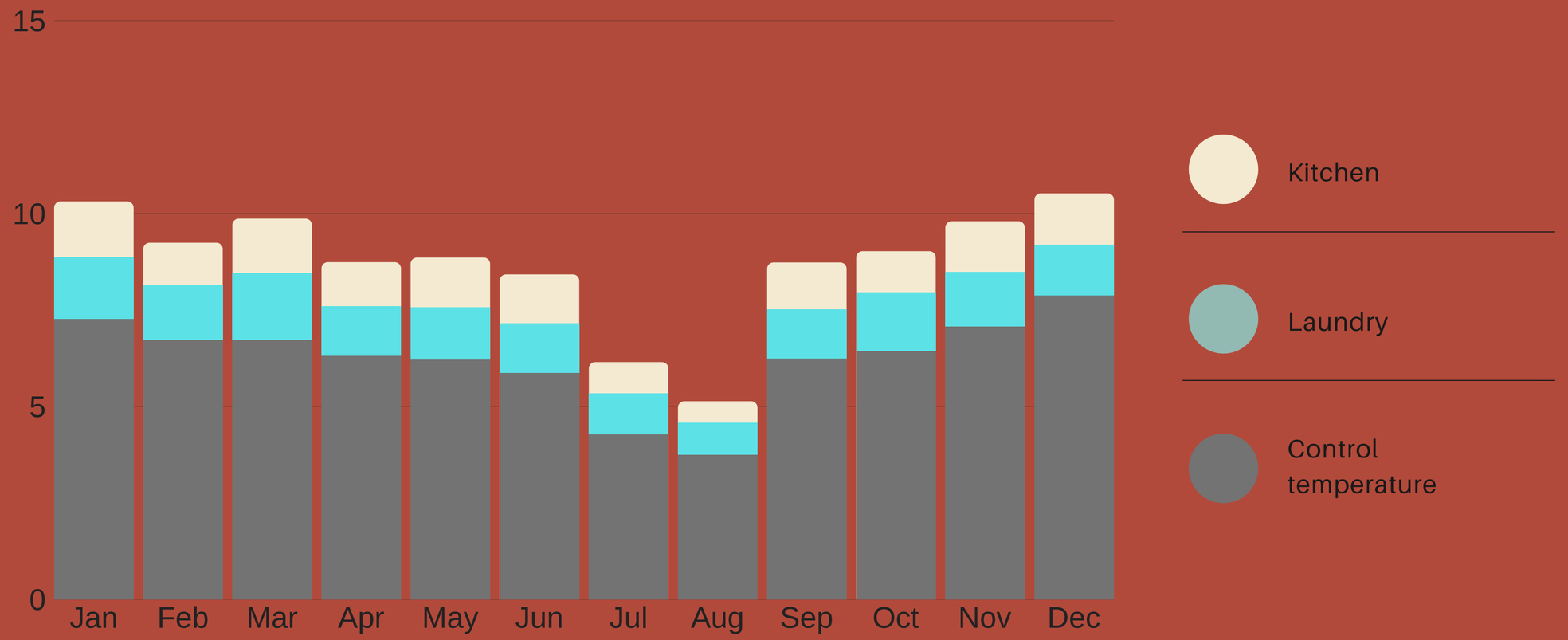
Deploy and scale

Power BI

Visualization

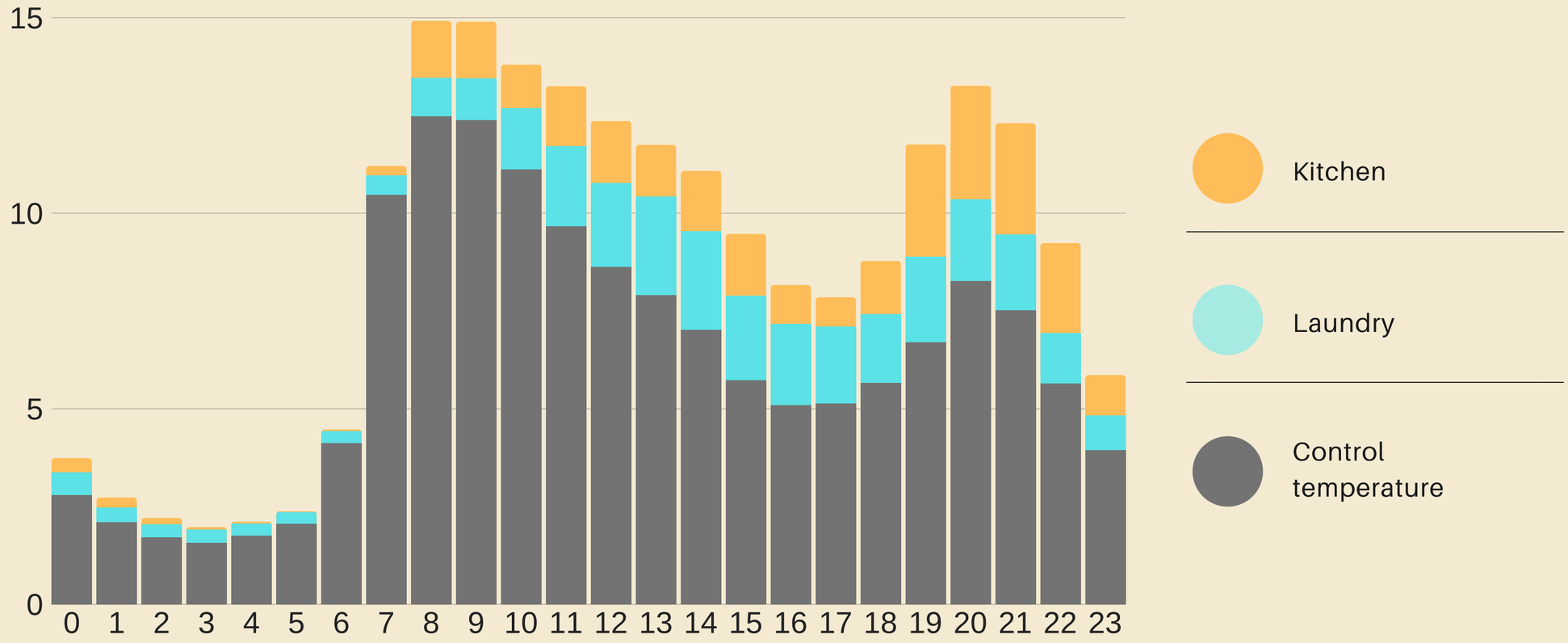
Statistics

per month



Statistics

per hour



Statistics

per sub-meter

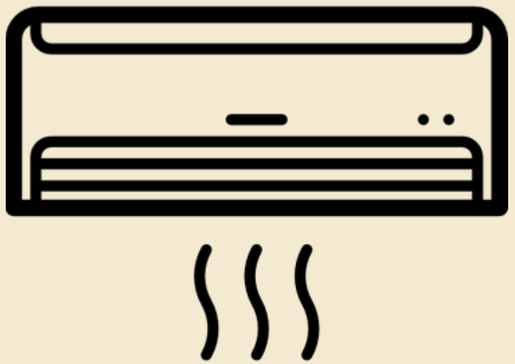
KITCHEN

10%

LAUNDRY ROOM

20%

CONTROL TEMPERATURE



70%

Recommendations

TEMPERATURE

Relate consume with temperature so client can estimate the cost.

WEATHER

Relate consume with weather so client can estimate the cost by season.

RESIDENT INFORMATION

Some information about the house residents like number and vacations.

Next steps

VISUALIZATION

Visualize the data to make it simple and intuitive to the client.

TIME PERIODS

Subset the data in meaningful time periods like year, month, day and period of the day.

SEASONAL

Subset the data in seasonal periods like vacations and seasons.

DASHBOARD

Provide a dashboard to show to the final client.


QUESTIONS?