

Electricity Usage & Quality Measure Device



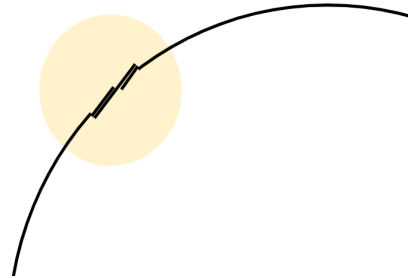
Introduction

Solita is a leading data analytic house in Nordic Countries and we'd like to have more data on the features & phenomenons of electricity.

The perfect AC is sine curved. When the load is pure resistive the voltage (V) and current (A) are synchronized. If there are capacitive or inductive loads the V/A are not synchronized. There might be "errors" (e.g. voltage spikes because of switching).

Sometimes when load is heavy even the voltage may drop a bit.

This project will develop a device that can measure the usage and quality of electricity. The need for this device is in research projects.



Project goals

- **Main goal is the measurement device**, but there might be need for pre study:
 - We are not sure what the sampling frequency should be, neither do we know about the sensitivity of the unit (maybe between 12 to 16 bits).
→ The project should start so that the group will test some devices and analyze with an oscilloscope how visible the errors are when switching on/off normal household appliances e.g. refrigerator or lights.
- The group will design a unit that can take accurate enough measurements on electricity (3-phase = 400V) both amperes and volts.
 - Amperes preferable in style of clamp current.
- The unit should be fast enough to measure the small phenomenons in the electricity and put the measurement data to cloud almost real time.

Client representative(s)

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PS. Just for your information → <https://www.kaggle.com/competitions/energy-anomaly-detection>