Sonnen Batteries System

**General Goals:**

* + Store the extra power that comes from the PV to use it
  + Saving money by reducing the amount of energy that comes from the grid.

**System Requirement:**

By setting Sonnen Batteries system in a household and attach it with both the grid and photovoltaics power source the system should be able to:

* 1. Charge it’s batteries if photovoltaics production is higher than the house consumption.
  2. Choose which power source should feed the house load.
  3. Discharge the batteries and allows it to feed the house batteries if photovoltaics production is lower than the house consumption.
  4. Get rid of the extra power that comes from photovoltaics in the grid.
  5. the grid should provide energy if photovoltaics production and system storage is lower than the house consumption.

**System Features:**

* 1. Take the house estimated energy consumption.
  2. Take photovoltaics production.
  3. Recommend a Storage System package (Basic, Standard, Pro).
  4. Detect the current system state:
* Charge storage system, the remaining power goes to the grid.
* storage system supply the power, getting help from grid if needed.
  1. Add Save and load records.

**Tools:**

* Front end: QT
* Back-end: Modern c++, cmake
* Test: QTest
* Storage: SQLITE
* version control: git & GitHub

**Simple Class Diagrams:**

**A diagram of a computer

Description automatically generated**

**Components Description:**

* QtManger: handle all UI APIs .
* DataManger: handle save and load operation.
* SonnenBs: our storage system that controls everything.
* Controller: handle and calculate the logic.

**Tasks Breakdown:**

* **T1:** create QtManger || estimation 🡪 1d.
* **T2:** create SonnenBS and its classes || estimation 🡪 1d.
* **T3:** put the calculation logic in controller|| estimation 🡪 0.5d.

**Enhancement for later:**

* **T4:** Create DataManger
* **T5:** Make Unit test using QTest
* **T6:** Divide QtManger Into more classes