Project proposal

- **Ultrasonic wind sensor**
  - Solid state wind sensor
  - Design of HW / SW
  - Cloud system for following up on wind
  - Components: (for instance)
    - Particle.io – embedded / cloud hw
    - Ultrasonic transducer system: tbd
    - Cloud visualization: Matlab / Influx db

Reference: Existing models
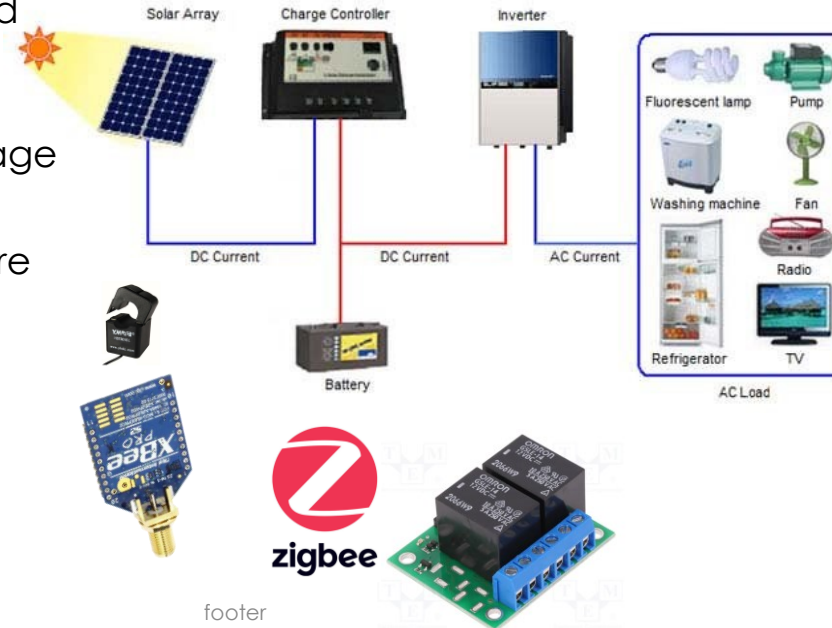
Project – solar system optimization

- Solar system have the problem that availability of energy and consumption of energy is not synchronized
- Solution: Device that can activate consumers when solar energy available
- 1. Measure produced PV by Hall Sensor
- 2. If current (power) > limit, send info over Zigbee to electrical relay
- 3. Can optimize solar panel usage
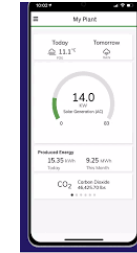
- Packetized with control software

Project – smart grid power socket

- Electricity prices are a challenge
- Smart outlet – set limit on hourly cost -

Config app

Day-ahead price information

Cloud service

entsoe
Transparency Platform

On / off command

Åbo Akademi University

EUR/MWh

	09-09-2022
00 - 01	201,01
01 - 02	119,91
02 - 03	102,59
03 - 04	101,51
04 - 05	120,00
05 - 06	275,88
06 - 07	303,89
07 - 08	379,41
08 - 09	392,10
09 - 10	366,97
10 - 11	344,60
11 - 12	321,95
12 - 13	296,52
13 - 14	279,06
14 - 15	250,27
15 - 16	258,29
16 - 17	262,78
17 - 18	315,46
18 - 19	419,93
19 - 20	449,94
20 - 21	388,94
21 - 22	300,01
22 - 23	161,26