# Aquaponics Research

* <https://cea.cals.cornell.edu/>   
  Controlled Environment Agriculture, LED light sizing, How many moles/lumens per m2
* Oxygenation
  + More bubblers with fish
  + Bubblers with plants
* Sump for circulation of water, Ph sensors, health of water without disturbing the fishies.
* Quiet oscillating fan for plants.

# Sensors

Electrical Conductivity sensor

* <https://github.com/pimoroni/mics6814-python>
* <https://learn.adafruit.com/adafruit-ens160-mox-gas-sensor>
* <https://wiki.seeedstudio.com/Grove-VOC_and_eCO2_Gas_Sensor-SGP30/>
* <https://www.sciencedirect.com/science/article/pii/S2215016123004326>
* <https://wiki.seeedstudio.com/Grove-Multichannel-Gas-Sensor-V2/>
* <https://wiki.seeedstudio.com/Grove-Multichannel_Gas_Sensor/>
* <https://kactoily.com/products/7-in-1-aquarium-wifi-monitor?variant=49385677586725>