

Project Specs

Sensor Module

- At least two sensors: Temperature & pH
- Resolution, precision, & accuracy must be sufficient to provide useful data:
Example: Accuracy $\leq \pm 0.1$ units, Precision $\leq \pm 0.1$ units, Resolution $\leq \pm 0.05$ units
- Measurements from each sensor are digitized.
- A calibrated reading is calculated for each.
- Calibrated readings are sent to the system module every second.

System Module

- Readings are averaged over 1 minute.
- The average reading of each sensor is logged in flash memory.
- Upon request from the Comm. Module, the contents of the log file is sent to the Data Analysis module
- Upon confirmation of receipt of data, the log file is cleared from memory.
- If the module is not anchored, a GPS system will be utilized to acquire accurate location measurements

Communications Module

- Uses cellular phone technology
- The in-house Data Analysis module initiates Comm link.
- Request for download is sent by Data Analysis module to System module.
- Entire content of log file is sent by System module to Data Analysis module.
- Send confirmation of receipt of data to System module.
- Comm. link is terminated by Data Analysis module.

Data Analysis Module

- Once a day, comm. link is initiated, request for download is sent, data is received and confirmation of receipt of data is sent.
- Data is analyzed, graphed, and posted to a website for general use.

Power and Enclosure

- Everything will be run off of a 12 volt battery
- The battery will be charged during the day using a solar panel, and systems will be run off of the battery a night
- The enclosure must be water tight with enough room for all electrical components, as well as have the ability to self-right
- Enclosure should be able to be anchored or free-floating