

9 Arvalla mätstationer i fält.

Mätstationer mellan skiftena i Kvidinge.



Prototypen visades upp på Innovations forumet på ELMIA.



Mätstation i odlingen.



Användargrafiken inlagd på produktionsstyrningssystemet.



Mätstationen är dokumenterad i Redmine som vi använde i Odling 4.0

Environmental Monitor Box

Environmental monitor box

Version of hardware:

This is an evaluation project to design and test a IoT unit to monitor environmental data.



The unit should monitor environmental data. There should be a number of sensors: temperature, moisture and example flooding alarm.

The unit should be able to run on a battery for about 2 year if no other power source is available. If possible a solar panel or TEG energy harvester could be an option.

The unit goes into deep sleep. Every 15 min it wakes up an take readings and store them on a SD card. Once a day the data is sent to our server by an SMS (gsm module).

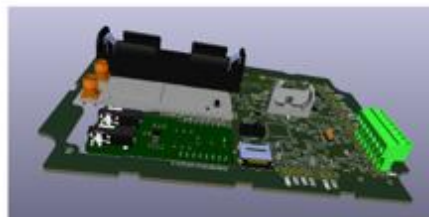
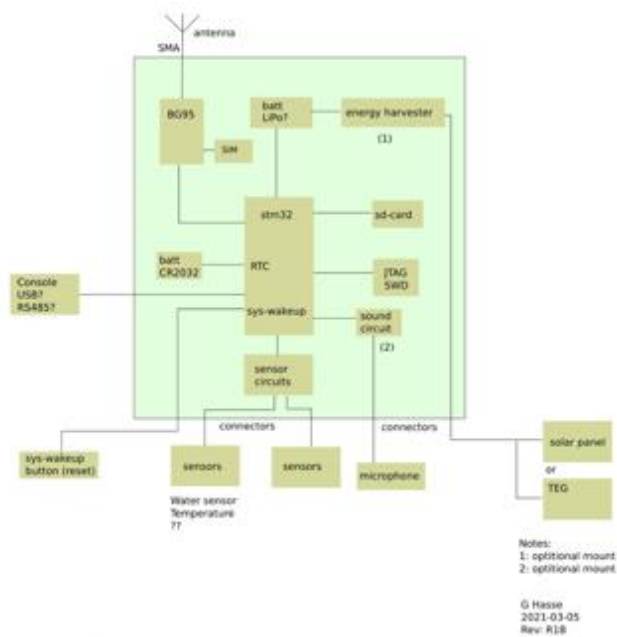
At the same time the unit is fetching its configuration. This is also an json formatted file.

This configuration sets the data collecting interval, report interval and there is also a possibility to request for a short recording of sound. This recording is to monitor the heat of machinery.

Example: https://www.kicad.com/wiki/evaluation_tools/eval-at002-1-0-0000

If the flooding sensor is activated (in contact with water) the unit sends an alarm to the server. If the server ACK this alarm no further alarms is sent. If the box don't get an ACK the alarm is sent every hour.

Battery saving strategy: If the battery goes low (under 3.6 volt) the unit sends an battery low alarm and then falls into deep sleep EXCEPT for flooding alarms that are still active.





[The card, without modem, fitted in a box.]



[BG95 is placed on a separate card for easy upgrading.]



Programming software

Software is written in C.



<http://www.st.com/en/development-tools/stm32cubeide.html>
Binaries are under files area
Download binary with the STM32-Programmer

