



Development of an autonomous solar tracking measurement platform for offshore use

Dieter Vansteenwegen, VLIZ



Vlaams Instituut voor de Zee vzw
Flanders Marine Institute

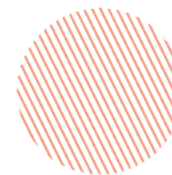


PANTR (PAN/TILT RADIOMETER)

Dieter Vansteenwegen, VLIZ



Vlaams Instituut voor de Zee vzw
Flanders Marine Institute



Hypermaq project

- Led by RBINS (REMSEM), funded by Belspo
- Purpose: algorithms for hyperspectral images
- But: access to ground truth data is an issue
- VLIZ is designing an automated sensor platform

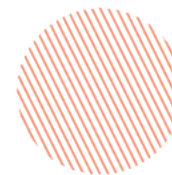


Vlaams Instituut voor de Zee vzw
Flanders Marine Institute





PANTR requirements



- Configurable protocol, interval, min. sun elevation, ...
- “Low” power
- Reasonable price



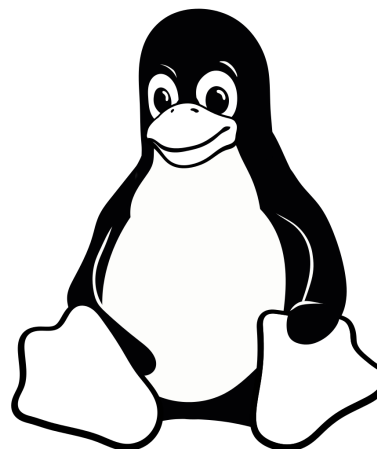
Vlaams Instituut voor de Zee vzw
Flanders Marine Institute





System design

- Off-the-shelf-components
- Modular
- Linux based control system

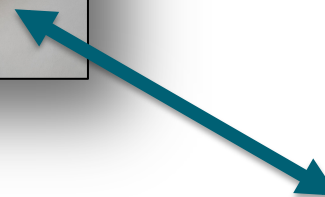
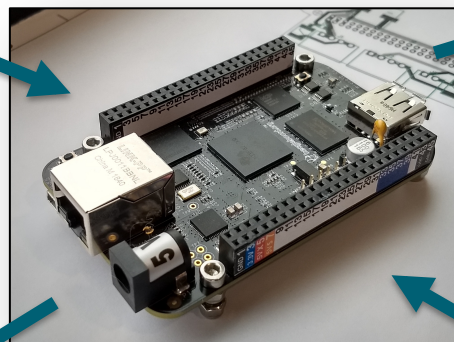
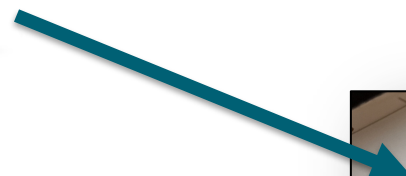
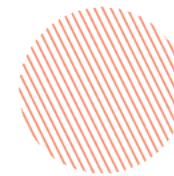


Vlaams Instituut voor de Zee vzw
Flanders Marine Institute



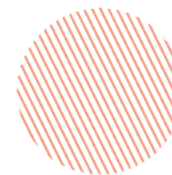


How does it work



Vlaams Instituut voor de Zee vzw
Flanders Marine Institute





Software

- Mostly Python, with some use of bash and cron
- OS: Debian
- Data/settings/queue/logs: SQLite

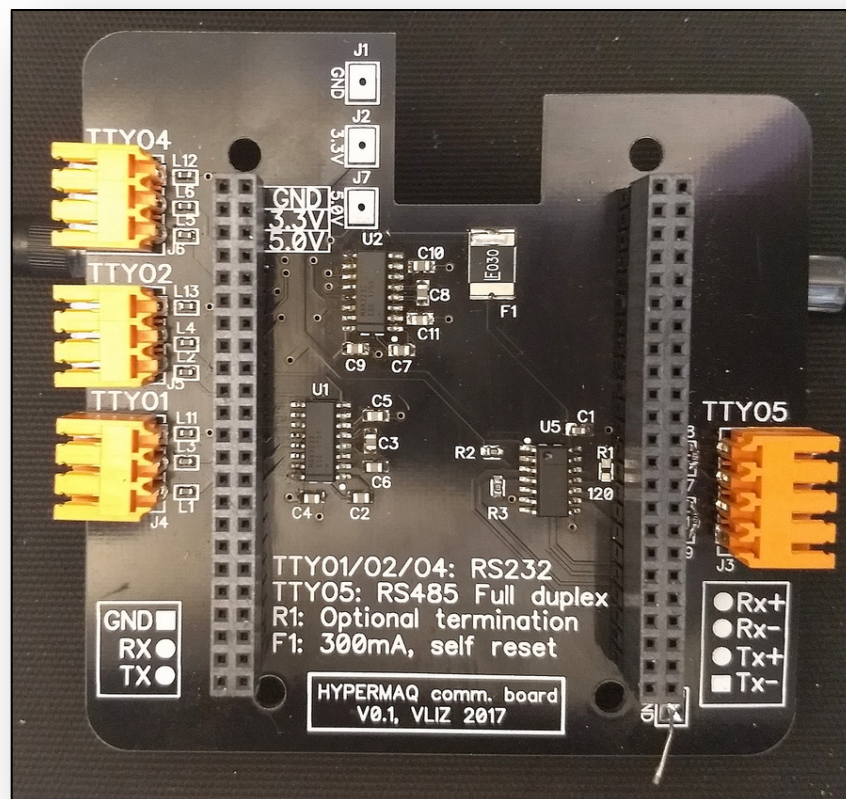
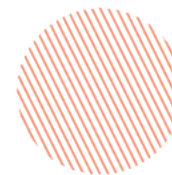


Vlaams Instituut voor de Zee vzw
Flanders Marine Institute

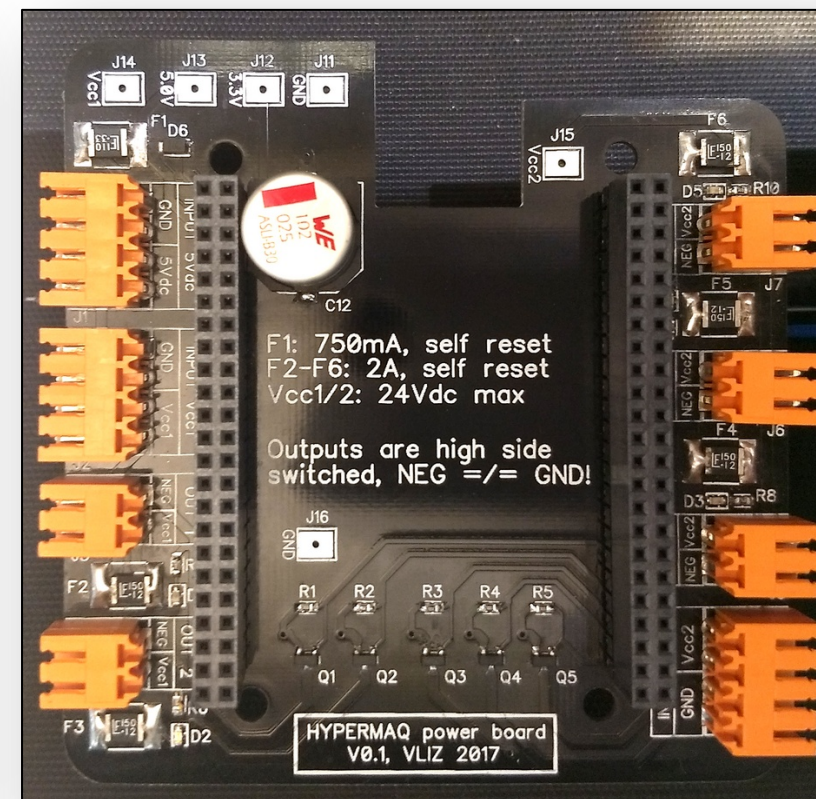




Electronics



Communication board

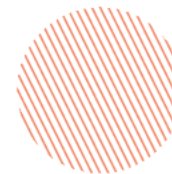


Power board





First prototype

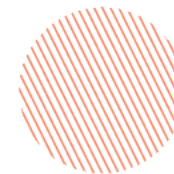


Vlaams Instituut voor de Zee vzw
Flanders Marine Institute





First test: Acqua Alta (IT)



Result:
Worked 6 continuous days
13,300 measurements
New ideas 😊



Vlaams Instituut voor de Zee vzw
Flanders Marine Institute





Lessons learned...



1

Start with a clear description
(and keep it up to date)

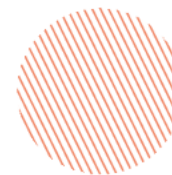


Vlaams Instituut voor de Zee vzw
Flanders Marine Institute





Lessons learned...



2

Modular is fine...
But draw limits.

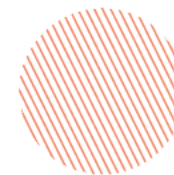


Vlaams Instituut voor de Zee vzw
Flanders Marine Institute





Lessons learned...



3

“Anything worth doing, is worth doing right.” (H.S.T.)



(Not guaranteed to be reliable)

(this isn't either)

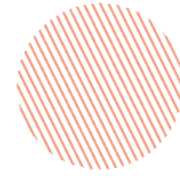


Vlaams Instituut voor de Zee vzw
Flanders Marine Institute





Lessons learned...



4

Talk to your colleagues

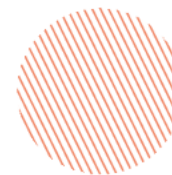


Vlaams Instituut voor de Zee vzw
Flanders Marine Institute



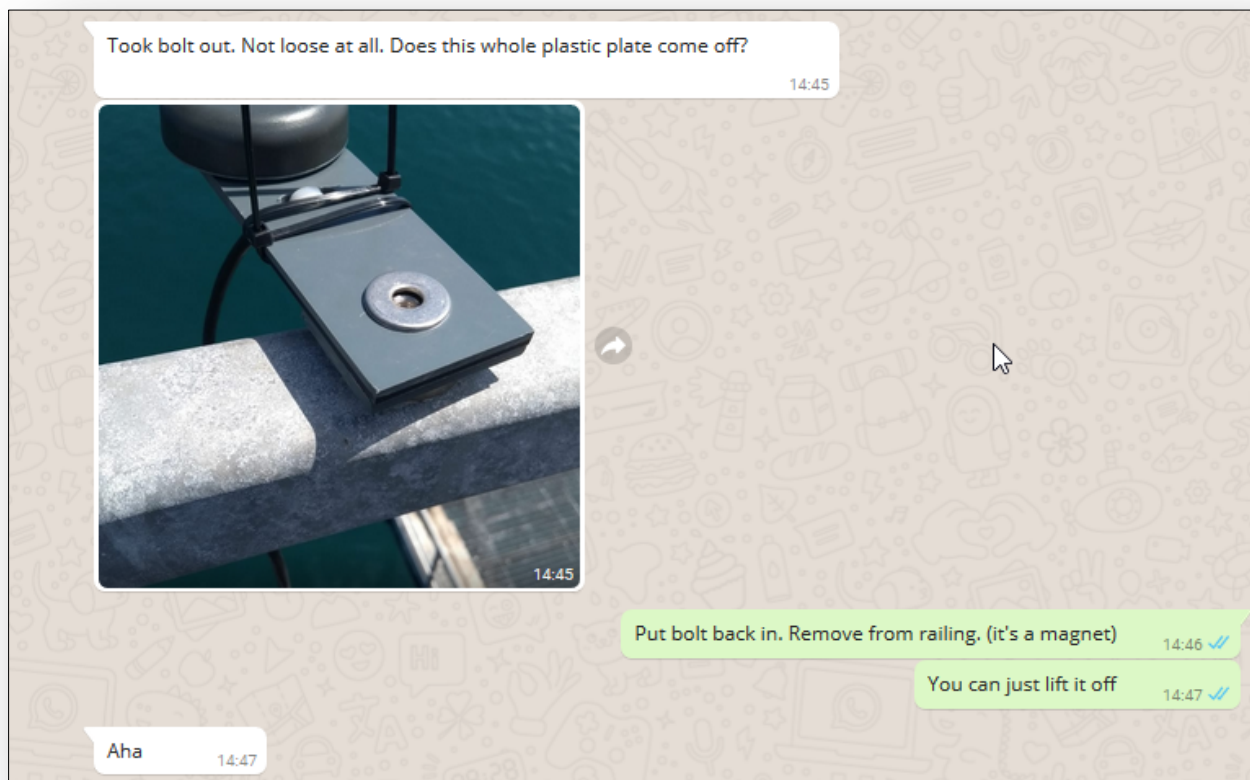


Lessons learned...



5

Write that user manual.

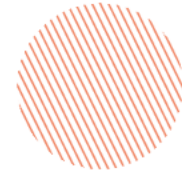


Vlaams Instituut voor de Zee vzw
Flanders Marine Institute





Open question...

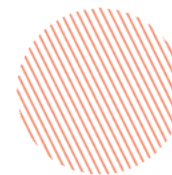


- Better options for azimuth alignment ?



Vlaams Instituut voor de Zee vzw
Flanders Marine Institute



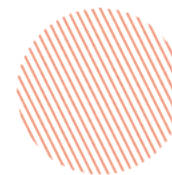


Thank you



Vlaams Instituut voor de Zee vzw
Flanders Marine Institute



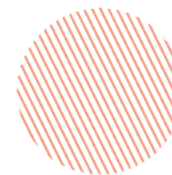


Thank you



Vlaams Instituut voor de Zee vzw
Flanders Marine Institute





Thank you



Vlaams Instituut voor de Zee vzw
Flanders Marine Institute

