

waterlily tea / livinglab

AMRO 2020

Nikola Brabcova Michal Klodner

Google investeert 500 miljoen euro in Gronings datacentrum

Google steekt in de komende jaren vijfhonderd miljoen euro in zijn datacentrum in de Groningse Eemshaven. De nieuwe investering is bedoeld voor de uitbreiding van het datacentrum en komt boven op de 950 miljoen euro die Google al in de regio

Met de uitbreiding hoopt Google [naar eigen zeggen](#) te kunnen blijven voldoen aan de vraag van consumenten en bedrijven'. Google maakte begin dit jaar bekend dat het datacentrum in Eemshaven de Nederlandse [Google Cloud Platform-regio](#) verzorgt, wat betekent dat de diensten vanuit het rekencentrum worden aangeboden en gehost. Onder andere Bol.com maakt gebruik hiervan. Nederland is daarmee de veertiende Cloud-regio in de wereld.

Het datacentrum waar het bedrijf nu in investeert is in december 2016 [geopend](#) en is het tweede datacentrum van Google in de Eemshaven. Energie krijgt de faciliteit van de Eemshaven Delfzijl. Er werken volgens Google 250 mensen bij het datacentrum; het gaat onder andere om specialisten, ingenieurs, beveiligers en cateringmedewerkers.



LOW←TECH MAGAZINE

This is a solar-powered website, which means it sometimes goes offline ✱

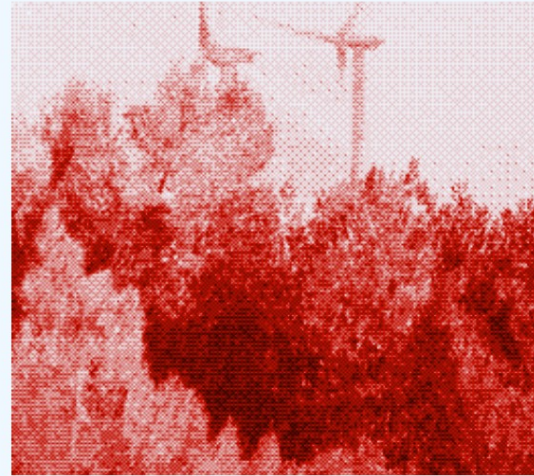
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How to Make Wind Power Sustainable Again

[High-tech Problems](#)

If we build them out of wood, large wind turbines could become a textbook example of the circular economy.

June 2019



Reinventing the Small Wind Turbine

[Low-tech Solutions](#)

A wooden rotor and tower greatly increase the net energy output over the lifetime of a small wind turbine.

June 2019



Low-tech Magazine: The Printed Website

[Obsolete Technology](#)

Read Low-tech Magazine with no access to a computer, a power supply, or the internet.

March 2019

**Efficient hardware, code, data
sometimes offline / solar powered
run your own / know your admin
green providers / ethical**



The Network We (de)Served, (XPUB Special Issue #08) Thursday, 04 April 2019 at Varia

Dear guest,

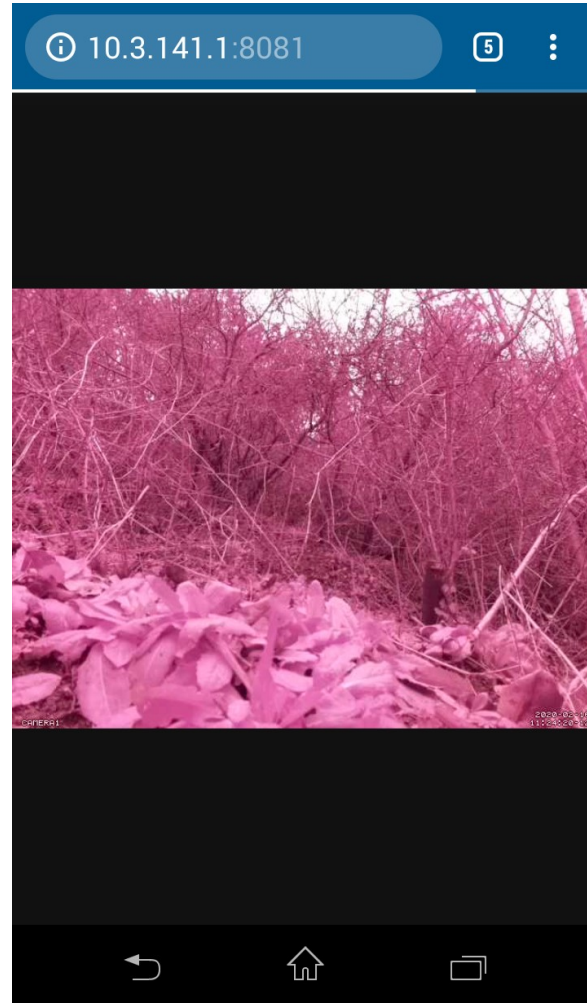
We traveled from home to home by bicycle, setting up homeservers. As friends and companions on this *Infrastructour*, we studied our routers over drinks served by our hosts. Where possible we installed our servers in our homes, in other cases we had to depend on another member of the group. While self-hosting together we questioned our understandings of networks, autonomy, online publishing and social infrastructures, where each of us departed from a different question. We would like to share our personal (yet interconnected) routes with you, tell you a story, present our web- and printed zines, and invite you to explore our homebrewed network.

Date: Thursday, 04 April 2019
Location: Gouwstraat 3, Rotterdam
Entrance: Free
Start: 19:00

<https://issue.xpub.nl/08/>

Contributors: Simon Browne, Tancredi Di Giovanni, Paloma García, Rita Graça, Artemis Gryllaki, Pedro Sá Couto, Biyi Wen, Bohye Woo, Roel Roscam Abbing, Manetta Berends, Lídia Pereira, André Castro, Aymeric Mansoux, Michael Murtaugh, Steve Rushton, Leslie Robbins.





Waterlily Tea / Livinglab approach: connected to nature, part of the ecosystem

Building a kubernetes cluster on Raspberry Pi and low-end equipment.

- [Raspberry Pi 3 Model B+](#) — a mini computer with a 1.4GHz 64-bit quad-core processor, 1GB RAM, Gigabit Ethernet
- [Raspberry Pi PoE HAT](#) — Raspberry Pi extension that allows to power the device over ethernet
- [microSDHC MIREX \(class10\) 8GB](#) — SD Card with an operating system for Raspberry Pi

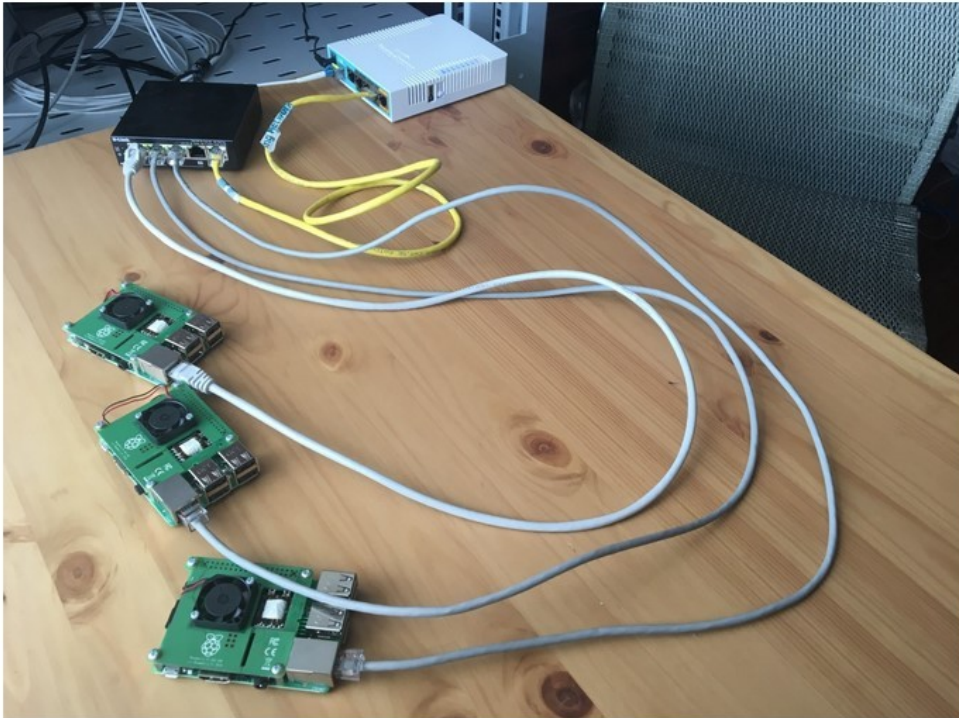


Figure 2. Network setup in action

COLLECTION UPDATED 4 MONTHS AGO

Build your very own self-hosting platform with Raspberry Pi and Kubernetes

8 ARTICLES

A set of tutorials to walk through the installation from scratch of a self-hosting platform using Kubernetes and Raspberry Pi

self-hosting • kubernetes • raspberrypi • k8s • privacy • home-lab

CURATOR
Gregjeanmart

(1/8) Build Your Very Own Self-hosting Platform With Raspberry Pi And Kubernetes - Introduction

Preface Self-hosting is a new trend which attracts more people every day, whether you are looking for more privacy, or disapprove big SaaS companies methods to

Grégoire Jeanmart 10 min read 13 Apr 20

(2/8) Install Raspbian Operating-System And Prepare The System For Kubernetes

This article is part of the series Build your very own self-hosting platform with Raspberry Pi and Kubernetes Introduction Install Raspbian Operating-System and

Grégoire Jeanmart 11 min read 01 Apr 20

(3/8) Install And Configure A Kubernetes Cluster With K3s To Self-host Applications

This article is part of the series Build your very own self-hosting platform with Raspberry Pi and Kubernetes Introduction Install Raspbian Operating-System and

Grégoire Jeanmart 24 min read 28 Apr 20



Raspberry Pi Dramble

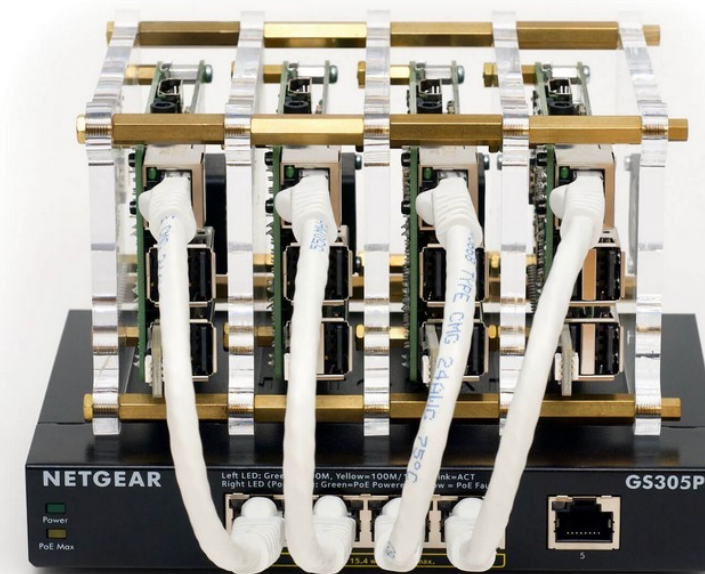
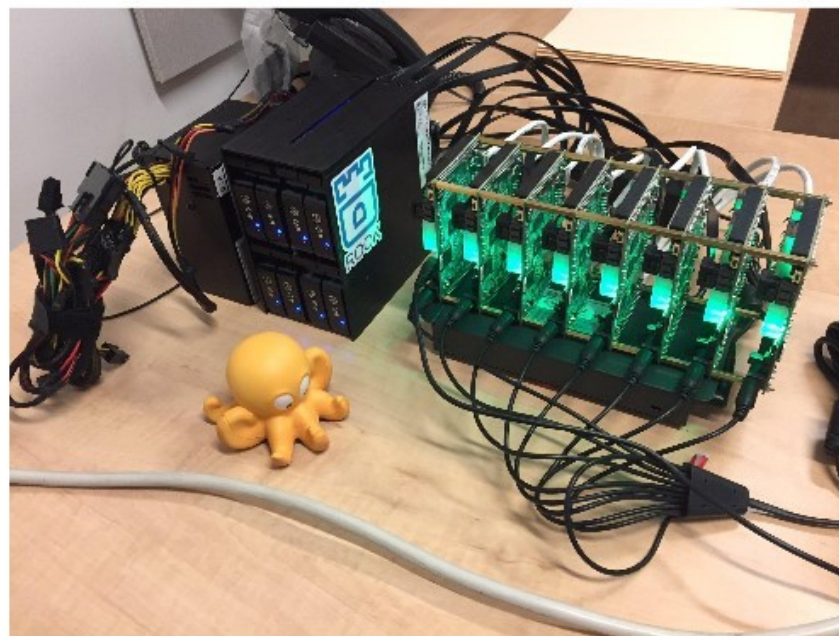
build passing

A cluster (Bramble) of Raspberry Pis on which Drupal is deployed using Ansible and Kubernetes.

SOFTWARE

uBoot
Linux 4.19.20
Docker 18.09
Kubernetes 1.14.2
... lots of pesky details.

```
$ kubectl create -f common.yaml  
$ kubectl create -f operator.yaml  
$ kubectl create -f cluster.yaml
```



Consumption



Raspberry Pi 4 B

Pi State	Power Consumption
Idle	540 mA (2.7 W)
ab -n 100 -c 10 (uncached)	1010 mA (5.1 W)
400% CPU load (stress --cpu 4)	1280 mA (6.4 W)

Raspberry Pi 3 B+

Pi State	Power Consumption
Idle	350 mA (1.9 W)
ab -n 100 -c 10 (uncached)	950 mA (5.0 W)
400% CPU load (stress --cpu 4)	980 mA (5.1 W)

Raspberry Pi 3 B

Pi State	Power Consumption
Idle	260 mA (1.4 W)
ab -n 100 -c 10 (uncached)	480 mA (2.4 W)
400% CPU load (stress --cpu 4)	730 mA (3.7 W)

- RPi Zero: 120mA, Arduino: 30mA

3 B	HDMI off, LEDs off, onboard WiFi	250 mA (1.2 W)
2 B	HDMI off, LEDs off	200 mA (1.0 W)
2 B	HDMI off, LEDs off, USB WiFi	240 mA (1.2 W)
Zero	HDMI off, LED off	80 mA (0.4 W)
Zero	HDMI off, LED off, USB WiFi	120 mA (0.7 W)
B+	HDMI off, LEDs off	180 mA (0.9 W)
B+	HDMI off, LEDs off, USB WiFi	220 mA (1.1 W)
A+	HDMI off, LEDs off	80 mA (0.4 W)
A+	HDMI off, LEDs off, USB WiFi	160 mA (0.8 W)

12V setup

- Lead-acid batteries
(can be used old from cars, recyclable)

- car starting battery

deep discharge damages, just temporary discharge

- traction deep cycle battery

VRLA technologies AGM, GEL

high number of cycles, with good care 10+ years
good for solar charging



- **Step Down changer DC 6-24V 12V/24V -> 5V 3A USB**

12V setup

panel + controller

panel voltage 0 - 40V (depends on num. of cells and sunlight)

charger input voltage: how many panels in series can be connected

charger battery voltage 12/24 - 1 or 2 batteries in series



> 5pcs

Solar panel GWL/Sunny
Poly 280Wp 60 cells
(ESP280 - Pack 4 pcs)

▶ add to compare

299.00\$



> 5pcs

Solar PWM Regulator
12/24 V, 10A, Input
30V/50V (LS1024E)

▶ add to compare

14.15\$

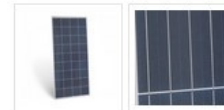


< 5pcs

Victron MPPT controller
75V/15A, Bluetooth,
12/24 V

▶ add to compare

110.40\$



Description

Parameters

Documents

Related Products

Weight (kg)	11,8
Connector	MC4
Peak power (Wp)	165
MPP voltage (V)	19,5
MPP current (A)	8,47
Voltage without load (V)	23.08
Short-circuit current (A)	9.31

12V setup

- $U = I * R$

- low voltage - high currents - thick cables! - good soldering, good connectors, switches
- thin cables, bad cable joints - higher resistance - heating, burning

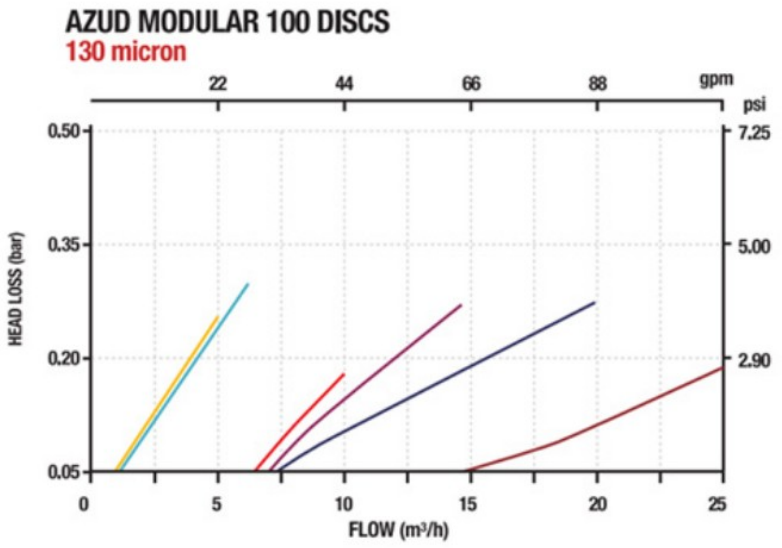
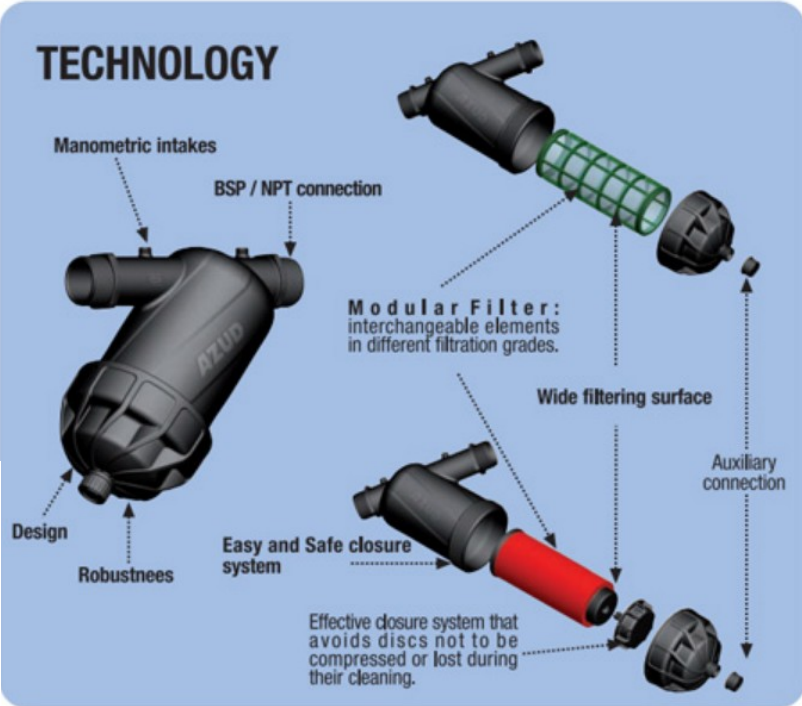
- $P = U * I$

- 110Wp to 12V = 9 A (10A charger)
- 240Wp to 12V = 20 A
- 240Wp to 24V (2 batteries in series) = 10A
- 12W pump on 12V = 1A
- 65W pump on 12V = 5,5A



- Power Inverter
12V -> 220V

WATER SYSTEM



AZUD MODULAR 100

3/4"	1 1/4"	1 1/2" SUPER
1"	1 1/2"	2"

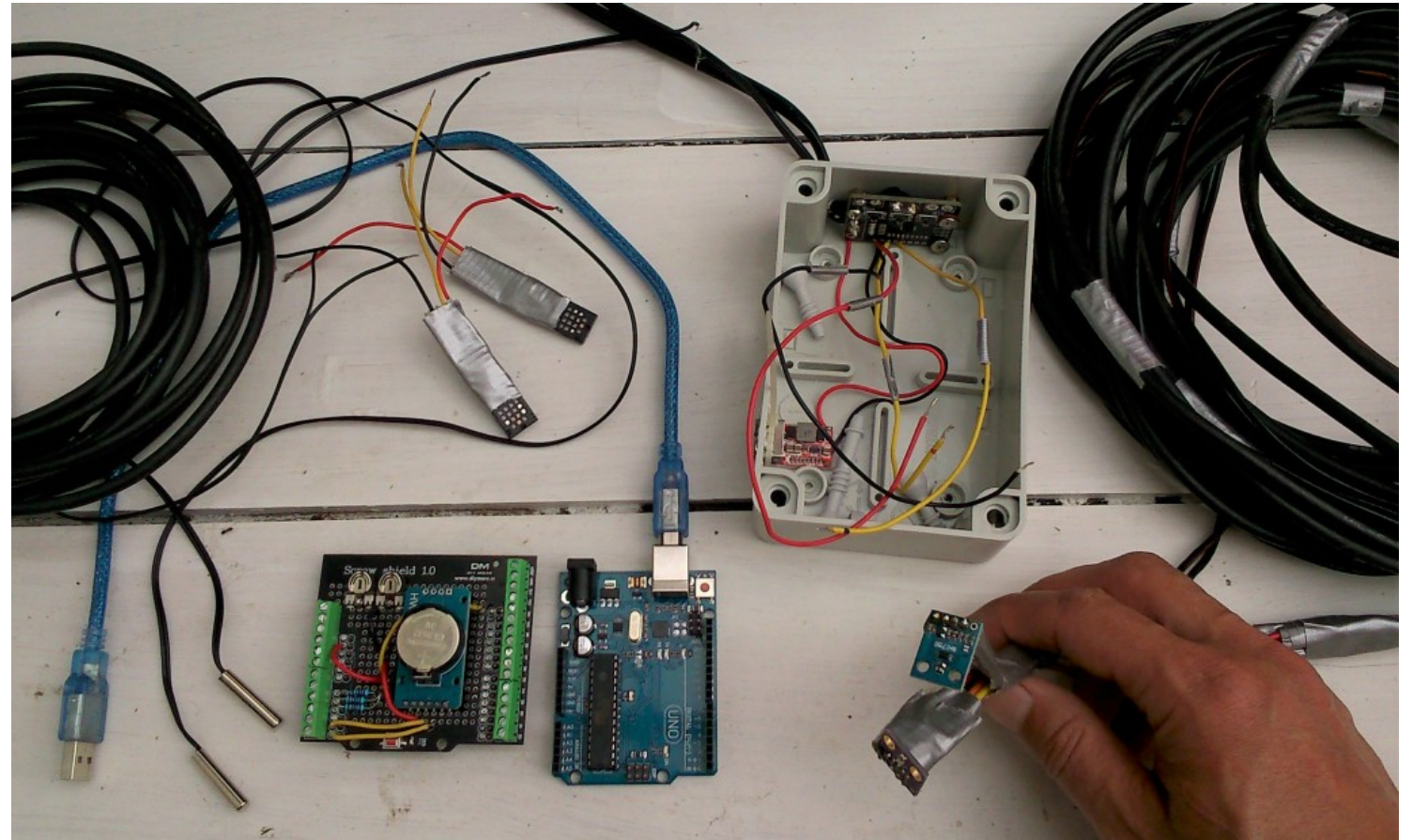




Sensors

Sensing the environment, weather processes, watering, air conditioning...

- 2x DHT22
humidity, temperature
- 3x termistor
- Light sensor
- Temperature and
air pressure I2C
+ 6M shielded cables
- Input voltage and current
3 - channel
- RTC Clock +
32Kbyte EEPROM I2C
- Arduino UNO



Sensors

20-5-9 19:27 date time

19,5C RTC module temp.

10,94 V battery voltage

3 mA Arduino current

(when on USB)

10,94 V 2 mA second channel

(not connected)

10,72 C water tank temp.

(1m under ground)

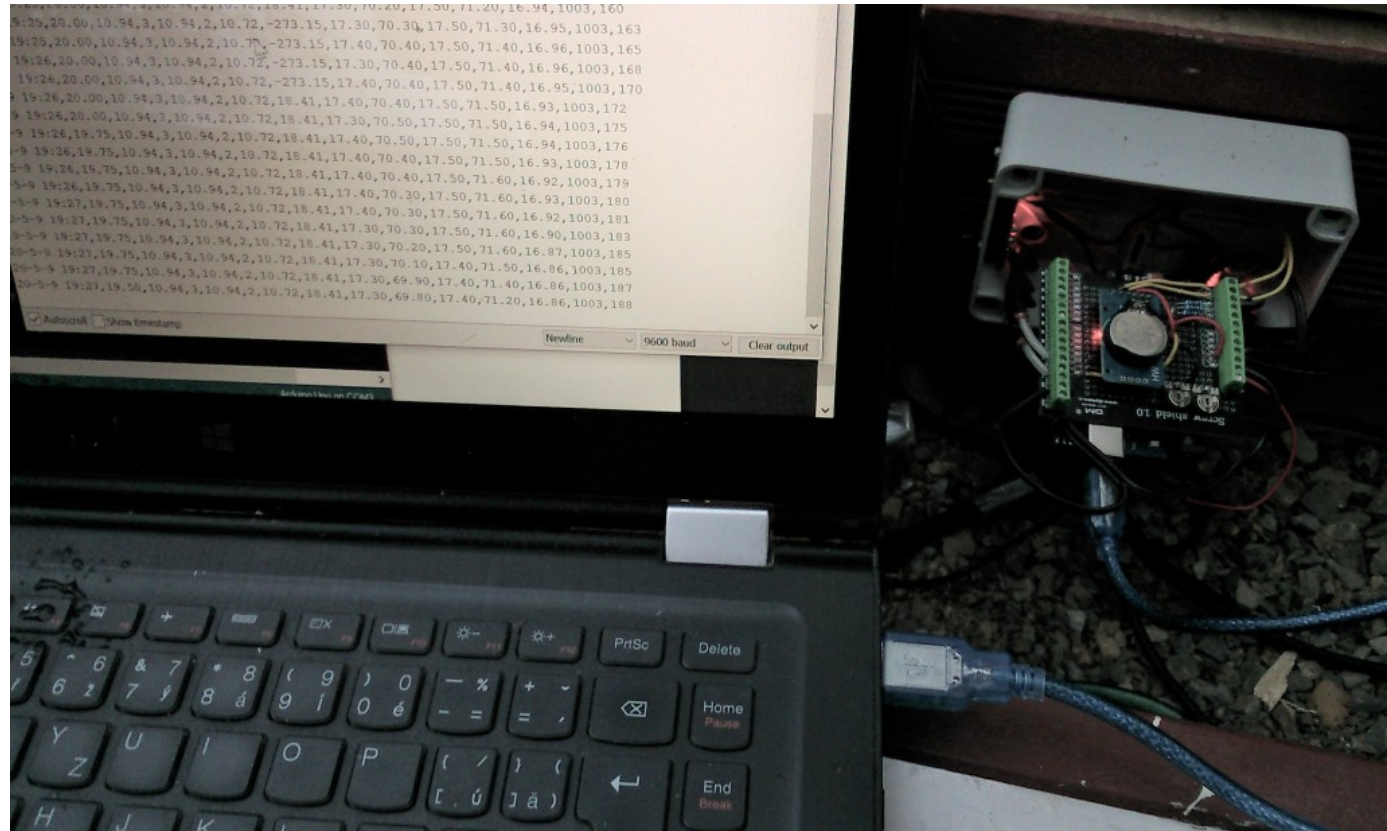
18,41 C ground temp. inside lab

17,30 C temp. 69,8% humidity inside lab, 17,40 C temp 71,2% humidity 2nd sensor same place, should be outside lab

16,86 C temp. under the lab roof

1003 atmospheric pressure

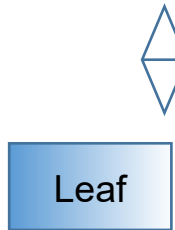
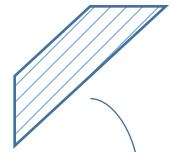
188 lux light



Temperature gain without heating energy – just using waste material
Greenhouse homeostasis – climate shift to southern areas



node9



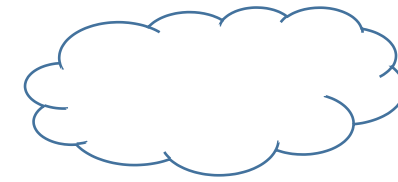
LTE mobile data
VPN client
Local Wifi + DNS
wired to sensors
Hubzilla
leaf.node9.org



HA proxy routing to
Raspberry nodes
OpenVPN server



VPN Client
Local Wifi
Hubzilla
fiu.node9.org



Wired internet
DNS on fixed IP
Rack housing

Media do not exist in a vacuum. They are mutually interconnected and it is the deciding factor of great complexity of media structures. The vocabulary of ecology is used here *“because it is one the most expressive languages that can be used to indicate massive and dynamic interrelation of processes and objects, beings and things, models and mass”*, writes Matthew Fuller in *Media Ecologies*.

leaf.node9.org

waterlily tea
waterlily@leaf.node9.org

Channel Home

leaf.node9

Share

waterlily tea
about 2 hours ago

On thursday we have a guest performer: **Irina Andreeva**
#^<http://tnf.cz/en>

will join waterlily tea with butoh meditation

performance butoh

expand

Comment

waterlily tea
2 days ago

New Member Links

Profile Creation

- Upload profile photo
- Upload cover photo
- Edit your profile

Find and Connect with others

- View the directory
- View friend suggestions
- Manage your connections

Communicate

- View your channel homepage
- View your network stream

Miscellaneous

- Settings
- Documentation

Missing Features?

- Pin apps to navigation bar
- Install more apps

Connections

Categories

- Everything
- 12V solar system
- arduino
- batteries

Leaf cam

The screenshot displays a web interface for 'leaf.cam'. At the top, there is a navigation bar with 'Photos' and a settings icon on the left, and 'leaf.node9' in the center. On the right side of the top bar are icons for search, help, home, user profile, and a grid view.

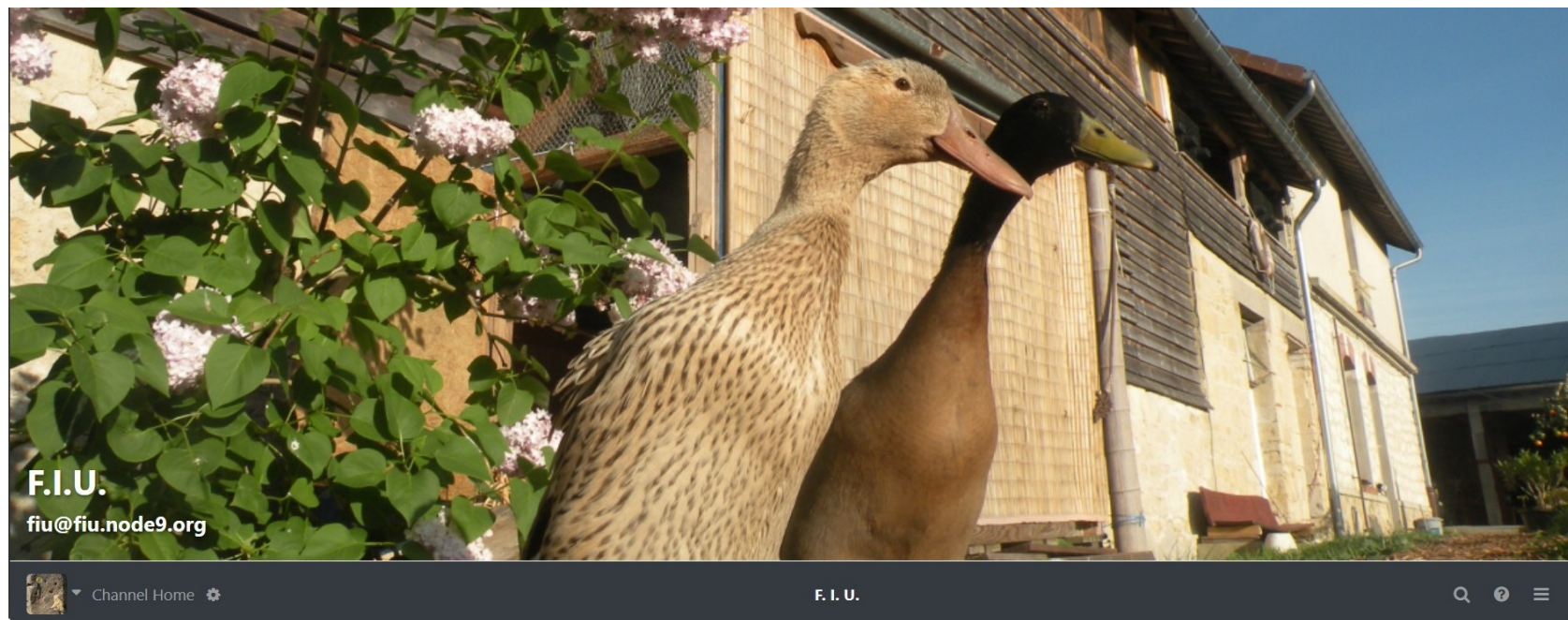
The main content area is divided into several sections:

- Top Left:** A 3D model of a water lily with a purple flower and a green lily pad. Below it is a green '+ Connect' button.
- Top Center:** A large video player showing a live stream of a plant. The video has a vertical scrollbar on its right side. Below the video are four cyan navigation buttons: up, left, right, and down. At the bottom of the video player are three buttons: 'Start', 'End', and 'Snapshot!'.
- Top Right:** A 'Photo Albums' sidebar with a list of albums: 'Recent Photos', '/', '2016', '2018', '2020-05', 'Cover Photos', 'leaf-cam', 'leaf-cam/2020-02', 'leaf-cam/2020-04', 'livinglab-architecture', 'livinglab-technology', 'Profile Photos', and 'SocialHub'.
- Bottom Left:** User information for 'waterlily tea' with a red flower icon, email 'waterlily@leaf.node9.org', and location 'Czechia'. Below this is a 'Connections' section with five profile icons.
- Bottom Center:** A gallery titled 'leaf-cam' with a green '+ Add Photos' button. It contains a grid of 10 thumbnail images showing various scenes from the live stream, including indoor plants and architectural details.

F. I. U. Amsterdam – Terron

social sculpture / Beuys

fiu.node9.org



F.I.U.
fiu@fiu.node9.org

Free International University. Social sculpture- open source project.

Gender:
♂ Male

Connections



Share



[New Connections](#) 1

[View all connections](#)

ri added your channel about an hour ago

Hubzilla channels

The screenshot shows the 'Channel Manager' interface. At the top left is the title 'Channel Manager' and a green '+ Create New' button. Below the title is the instruction 'Switch to one of your channels by selecting it.' A horizontal separator contains the text 'Ecosystems * Living labs * Bio shelters *' on the left and a 'Make Default' checkbox on the right. Three channel cards are listed below, each with a thumbnail image, a title, and notification counts for messages and introductions. The first card has a thumbnail of a person with arms raised and the title 'Ecosystems * Living labs * Bio shelters *'. The second card has a thumbnail of a tree and the title 'senses @ organisms'. The third card has a thumbnail of a potted plant and the title 'waterlily Tea'.

The screenshot shows the 'Create a Channel' form. At the top is the title 'Create a Channel'. Below it is a descriptive paragraph: 'A channel is a unique network identity. It can represent a person (social network profile), a forum (group), a business or celebrity page, a newsfeed, and many other things.' The form has a section titled 'Channel role and privacy' with a dropdown menu currently set to 'Social - Mostly Public'. Below this is the instruction 'Select a channel permission role compatible with your usage needs and privacy requirements.' and a link 'Read more about channel permission roles'. There are two required text input fields: 'Channel name *' and 'Choose a short nickname *'. Below the 'Channel name' field is a red error message: 'A channel name is required.' Below the 'Choose a short nickname' field is the instruction: 'This will be used to create a unique network address (like an email address). Allowed characters are a-z 0-9, - and _'. At the bottom of the form is a blue 'Create' button and a link: 'or import an existing channel from another location.'

channel cloning >

File sharing and WebDAV access to channel files (external storage in Nextcloud, Linux, Mac, Android etc.)

The image displays a Nextcloud interface on the left and a Windows File Explorer window on the right. The Nextcloud interface shows a sidebar with 'New Network Activity' (17900), 'New Connections' (11), and 'New Files' (2). Below these are notifications from 'Vasulka Kitchen' and a 'Notices' section (274). A 'Files: shared with me' section lists two files: 'Efekt Vašulka_ Kino Pilotů - diskuze.mp4' (464.74 MB, 2020-02-02 12:12:42) and 'pilotu.WAV' (301.56 MB, 2020-02-02 12:01:01). The Windows File Explorer window shows a list of network drives: 'node9 Woody' (33 GB, před 21 minutami), 'Photos' (3 MB, před 6 měsíci), 'PREZENTACE DK' (140,6 MB, před 9 minutami), and 'SSF' (22,9 MB, před 3 měsíci). A 'Map Network Drive' dialog box is open, showing the 'Drive' set to 'Z:' and the 'Folder' field. The dialog includes a link: 'Connect to a website that you can use to store your documents and pictures.'

Name	Size	Last Modified
Efekt Vašulka_ Kino Pilotů - diskuze.mp4 NEW	464.74 MB	2020-02-02 12:12:42
pilotu.WAV NEW	301.56 MB	2020-02-02 12:01:01

The Concept of Tactical Media



TMF EDITORS

March 07, 2017

TACTICAL MEDIA, THEORY, MEDIA THEORY, TACTICAL
EDUCATION, TACTICAL RESEARCH

[1 image](#)

"Tactical Media are what happens when the cheap 'do it yourself' media, made possible by the revolution in consumer electronics and expanded forms of distribution (from public access cable to the internet), are exploited by groups and individuals who feel aggrieved by or excluded from the wider culture..."

(Garcia & Lovink, "The ABC of Tactical Media", 1997)

Tactical Media was a movement that combined art, experimental media and political activism. Although it had been present around the world in various forms many years, Tactical Media as a movement was first identified and named as such, by a group of artists, media pirates and theorists in Amsterdam in the 1990s.

Tactical Media emerged when the modest goals of media artists and media activists were transformed into a movement that challenged everyone to produce their own media in support of their own political struggles. This "new media" activism was based on the insight that the long-held distinction between the 'street' (reality) and

LOCAL SENSITIVE, LOW-POWER,
LOW-COST, RESILIENT MEDIA
INFRASTRUCTURE

ideas

ideas