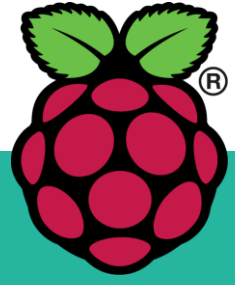
# SENIORWEB

# NUENEN

SENIORWEB



# Raspberry Pi & Homedomotica

Jan Vollebregt

SENIORWEB

# Domotica op Raspberry Pi

2 delen:

- Raspberry Pi
- Domotica

# Raspberry Pi

Raspberry 3b

- Ontwikkeld door universiteit Cambridge UK
- 2012 versie 1, inmiddels versie 4.
- Educatief, thuisgebruik en industrie
- Lage kosten: €40,- excl behuizing en voeding

# Raspberry Pi

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## Specificatie
(3b, 4b = licht aangepast)

- Voeding (micro) USB
- 4 USB (2) poorten
- LAN en WLAN (= WiFi)
- Bluetooth
- HDMI
- Audio/video (composite)
- MicroSD-kaart

## Hardware

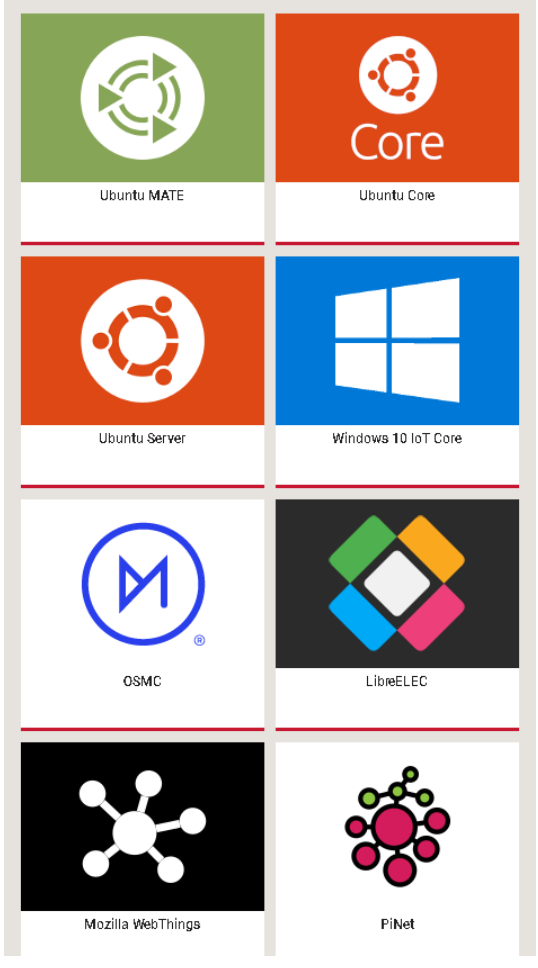
- Raspberry
- voeding
- muis
- toetsenbord
- HDMI monitor

De Pi is ook te benaderen via een andere computer (webinterface, Teamviewer, SSH, etc). Handig als je geen monitor, toetsenbord of muis (over) hebt, of niet thuis bent.

# MOGELIJKHEDEN

Volledige computer

- Meer dan 20 operating systemen, veel Linux.
- Algemeen of voor specifieke doeleinden
  - Raspian (officieel, veel gebruikt)
  - Ubuntu Mate (algemeen)
  - OSMC: Open Source Media Center (mn KODI)
  - OpenELEC: Open Embedded Lunux Entertainment Center)
  - Windows10 IoT



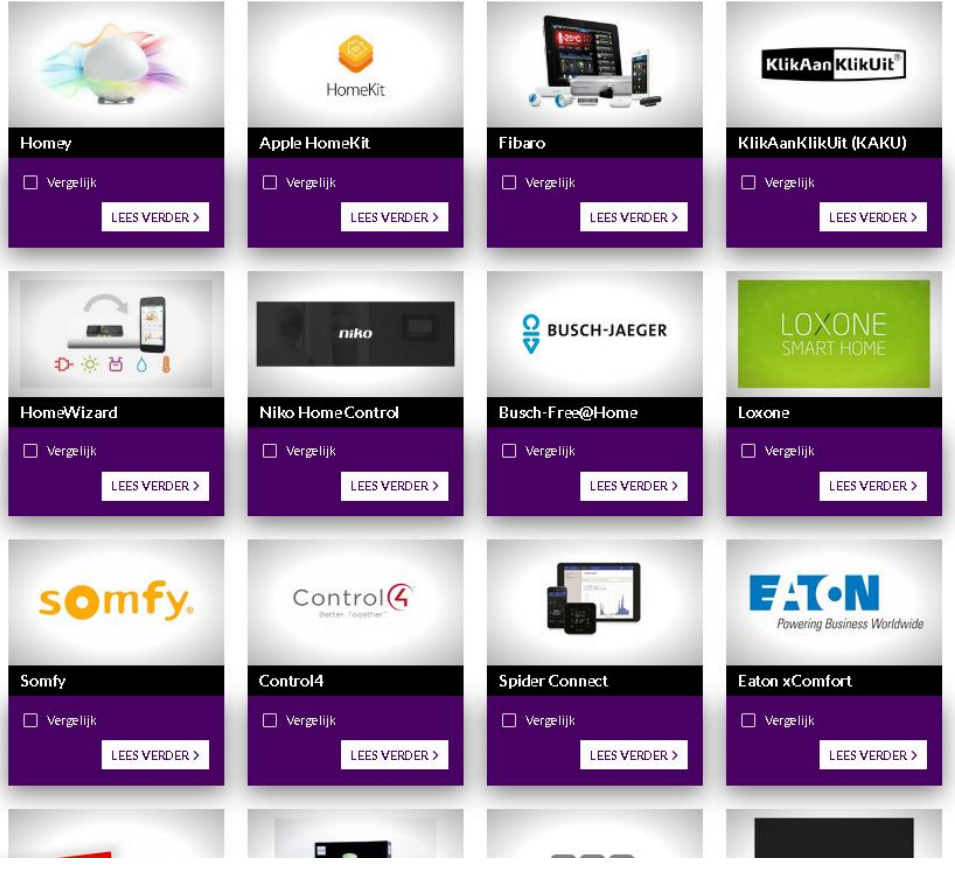
# MOGELIJKHEDEN

Operating system incl toepassing downloaden en (met behulp van een externe computer) op SD kaartje zetten

- Domotica systeem
- Media speler
- NAS
- Spelcomputer
- Desktop PC
- …..

Op internet is (nagenoeg) alles te vinden!!

# Home domotica systemen




Kant en klare systemen, allemaal met een of meer (vooraf ingestelde) protocollen

# Home domotica systemen

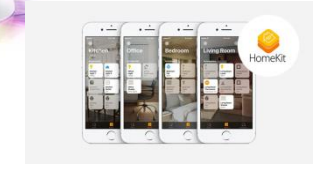
Protocollen in homedomotica

433 Mhz, 868 Mhz, Bluetooth, Bluetooth Smart (low energy), Google Cast, Infrarood, IP, Somfy RTS, Wi-Fi, X10, Z-Wave, Z-Wave plus, Zigbee

# Home domotica systemen

## Kant en klaar

- Homey — Div
- Apple Homekit — Div
- Fibaro — Z-wave
- Klik Aan Klik Uit — 433 Mhz
- HomeWizard — Div
- Somfy — Div
- etc — Zie: https://domoticavergelijken.nl/



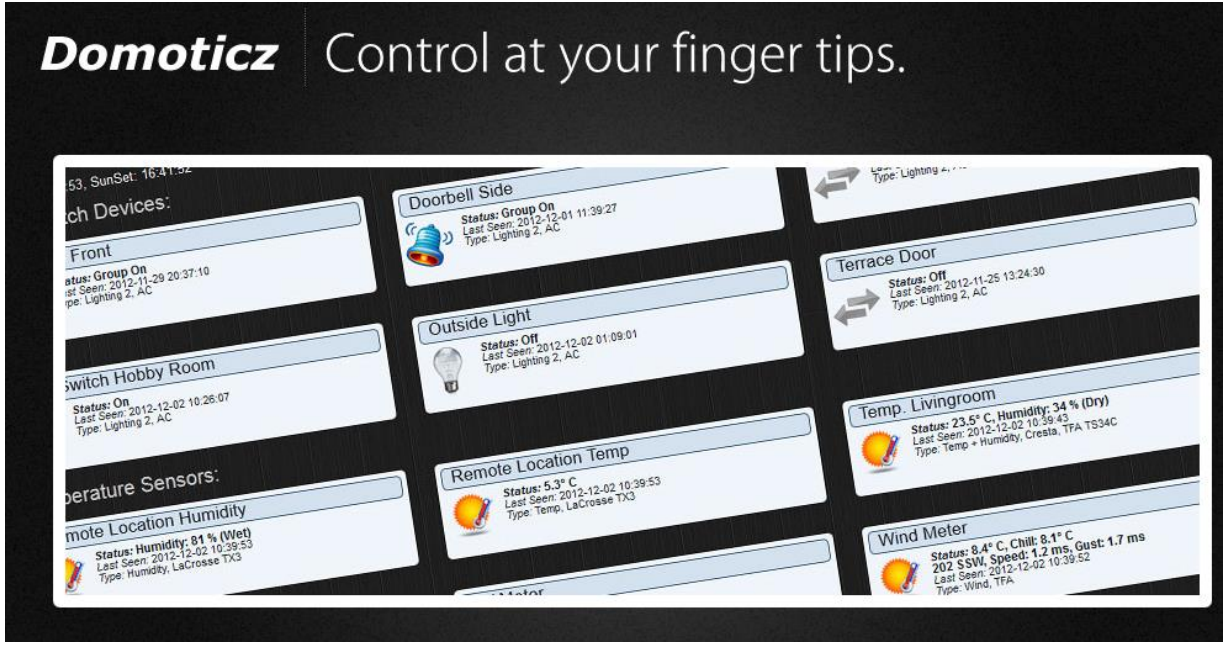
# Home domotica systemen

Welk systeem is:

- het beste
- niet te duur
- meest all round
- makkelijkste te bedienen
- toekomst bestendig

# Raspberry Pi met Domoticz

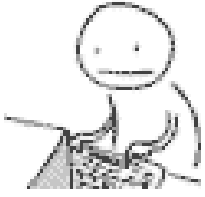
Gekozen voor Raspberry Pi met Domoticz



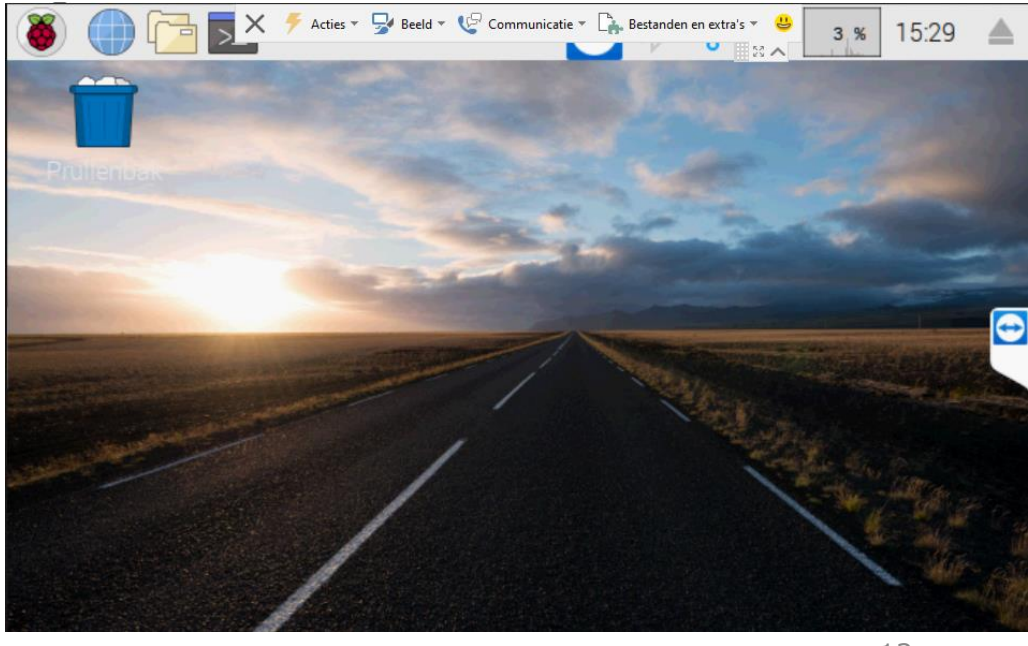
# Raspberry Pi met Domoticz

Start:
(De laatste versie van) Raspbian downloaden, op micro SD card zetten, in Raspberry plaatsen en opstarten. Er is heel veel informatie op internet, ook van (vele) jaren geleden.

INFO IS DAAROM HEEL VERWARREND



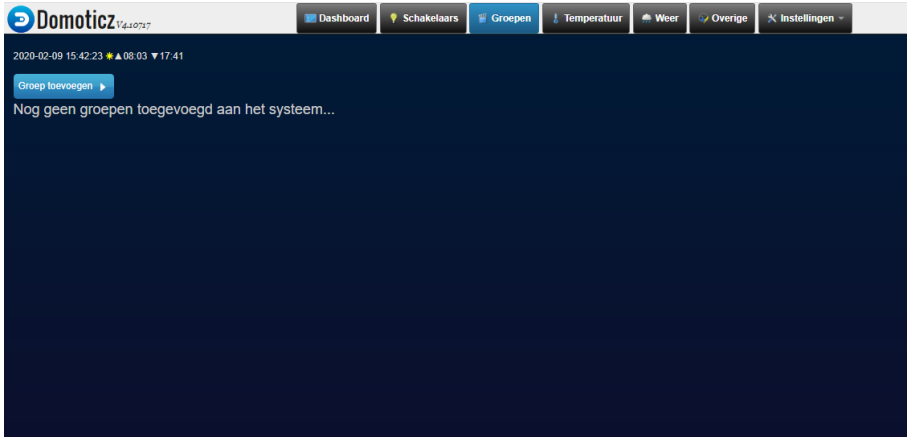
Bij nieuwere versies van het operating systeem kun je het opstart schema doorlopen en behoef je de configuratie (oa wachtwoord, scherm en wifi) nauwelijks nog aan te passen:



# Raspberry Pi met Domoticz

Vervolgens

- Domoticz installeren
- Hardware aansluiten
  - RFX (Klik Aan Klik Uit)
  - Z-Wave
  - Zigbee (Philips Hue)
  - Slimme meter
  - Siri / Hee-Google




- Ook “stand alone” systemen als:
  - CV thermostaat (Nefit)
  - Omvormer voor zonnepanelen (SMA, Solar Edge),
  - Camera (Netatmo),
  - Weerstation (Open weather),
  - Buienradar, etc

Deze “stand alone” systemen zijn soms lastig te installeren. Dan is kennis van Linux en/of Python nodig. Maar meestal op internet wel te vinden.

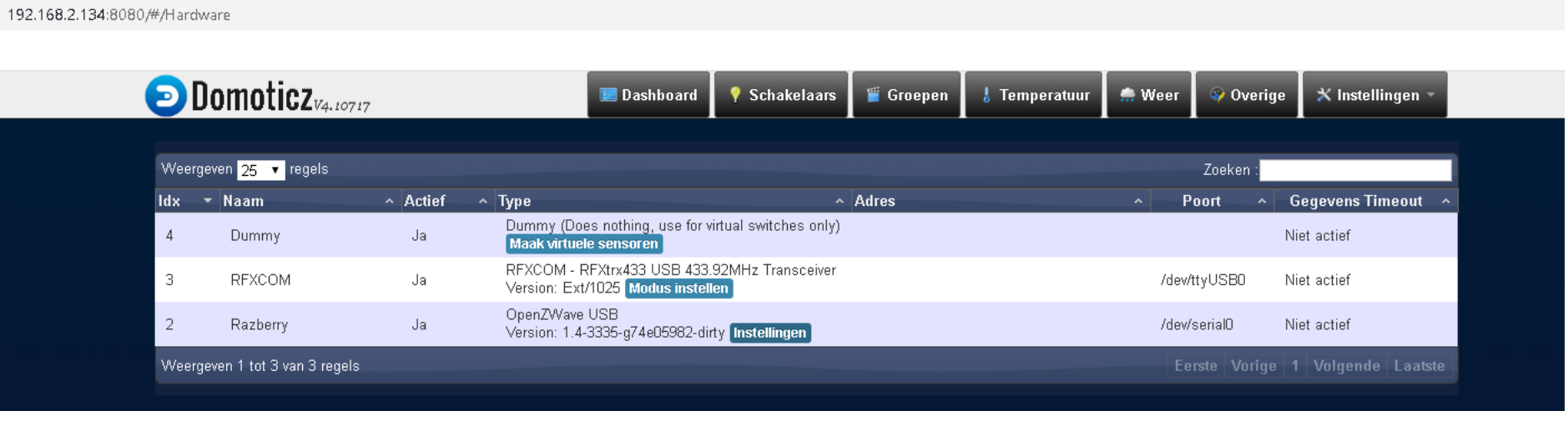
# Raspberry Pi met Domoticz

## Voorbeelden hardware:

- Schakelaars:
  - Stekker (KIKA / Z-wave)
  - In lichtaansluiting (plafond)
- PIR
  - Licht
  - Beweging
  - Temperatuur
- Slimme meter
- Verwarming
- Temperatuur
- Verlichting

# Raspberry Pi met Domoticz

Domoticz hardware:



# Raspberry Pi met Domoticz

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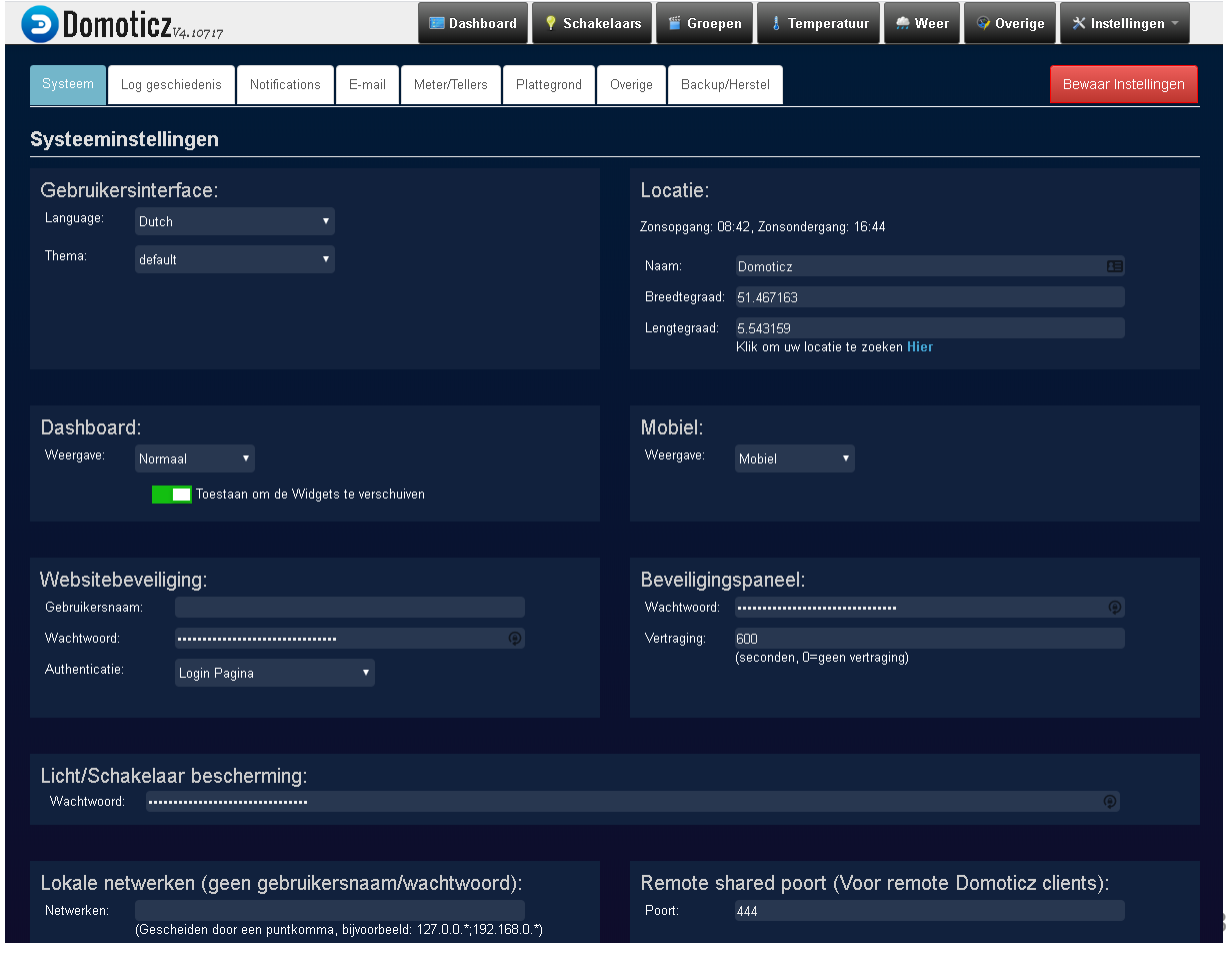
## Hardware vervolg:

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 484 | Razberry | 0000A03 | 255 | PIR 2 LUX | Lux | Lux | 3 Lux | - | | | | 2020-01-04 14:12:36 |
| 225 | Razberry | 0000703 | 255 | PIR 3 LUX | Lux | Lux | 13 Lux | - | | | | 2020-01-05 13:52:29 |
| 226 | Razberry | 0601 | 1 | PIR 1 TEMP | Temp | LaCrosse TX3 | 19.4 C | - | - | | | 2020-01-05 14:13:41 |
| 222 | Razberry | 00000700 | 1 | PIR 3 KLUIS Slaapkamer | Light/Switch | Switch | Off | - | | | | 2020-01-03 19:11:36 |
| 485 | Razberry | 0A01 | 1 | PIR 2 TEMP | Temp | LaCrosse TX3 | 20.4 C | - | | | | 2020-01-05 14:14:26 |
| 795 | Razberry | 00000B01 | 1 | Thermostat Mode | General | Thermostat Mode | Heat (Default) | - | - | | | 2020-01-05 14:11:39 |
| 796 | Razberry | 0000B01 | 1 | Instelling temp vl verw badk | Thermostat | SetPoint | 10.0 | - | - | | | 2020-01-05 14:15:16 |
| 797 | Razberry | 0000B0B | 1 | Energy Heat | Thermostat | SetPoint | 14.5 | - | - | | | 2020-01-05 14:15:18 |
| 798 | Razberry | 0B01 | 1 | Huidige temp vl verw badk | Temp | LaCrosse TX3 | 21.5 C | - | - | | | 2020-01-05 14:14:35 |
| 2852 | Razberry | 00000965 | 1 | Unknown | Color Switch | RGBW | NightMode | - | - | | | 2020-01-03 19:49:40 |
| 30 | RFXCOM | 17B66F6 | 1 | Hoek rechtsv (M1/I-1) | Lighting 2 | AC | Off | - | - | | | 2020-01-05 00:15:01 |
| 31 | RFXCOM | 17B66F6 | 2 | Antieke kast (M2/I-2) | Lighting 2 | AC | Off | - | - | | | 2020-01-05 10:31:00 |
| 32 | RFXCOM | 17B66F6 | 3 | Stoel Jan (M3/I-3) | Lighting 2 | AC | Off | 8 | - | | | 2020-01-03 22:14:17 |
| 40 | RFXCOM | 17B66F6 | 11 | Netatmo (M4/III-3) | Lighting 2 | AC | Off | - | - | | | 2020-01-04 20:52:22 |
| 35 | RFXCOM | 17B66F6 | 6 | Vervallen La (M5/II-2) | Lighting 2 | AC | Off | - | - | | | 2020-01-03 22:22:25 |
| 41 | RFXCOM | 17B66F6 | 12 | Hikvision (M6/III-4) | Lighting 2 | AC | Off | - | - | | | 2020-01-03 22:30:32 |
| 33 | RFXCOM | 17B66F6 | 4 | Eettafel (V1/I-4) | Lighting 2 | AC | Off | - | - | | | 2020-01-04 12:47:34 |

# Raspberry Pi met Domoticz

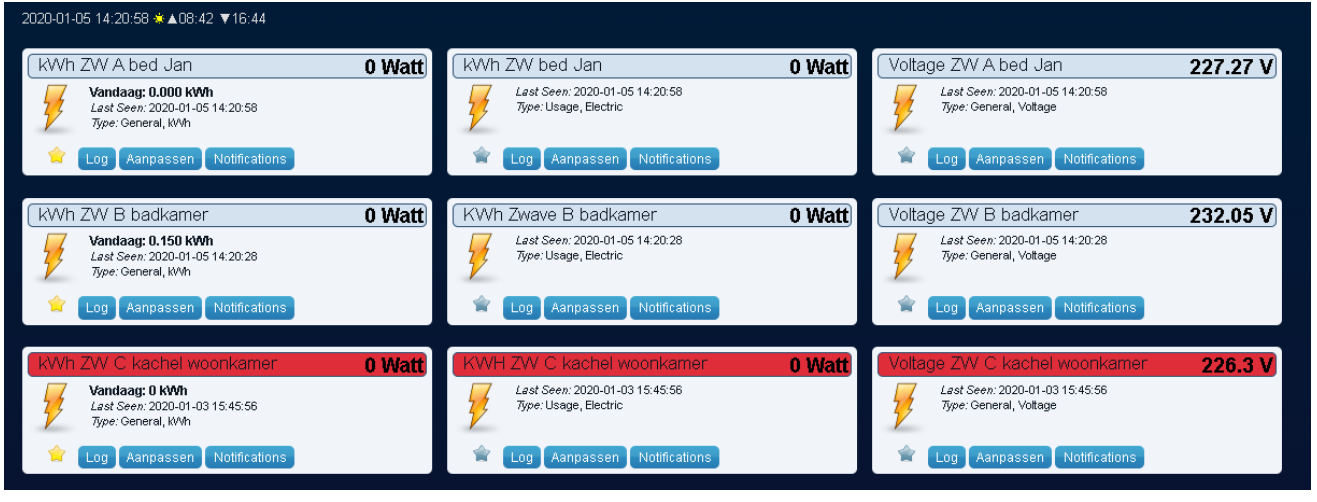
Instellingen:



# Raspberry Pi met Domoticz

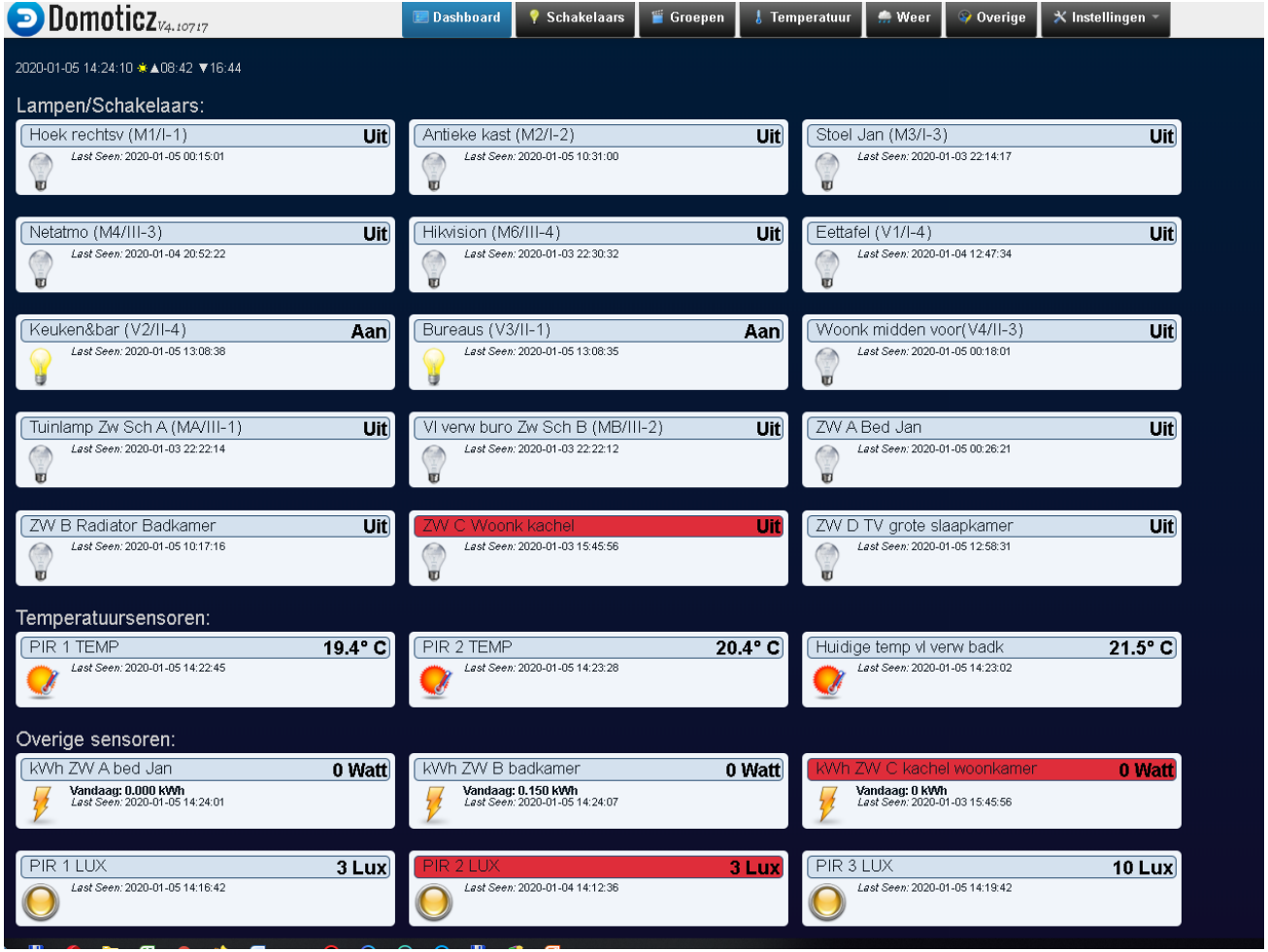
Temperatuur

Monitoring



# Raspberry Pi met Domoticz

DASHBOARD

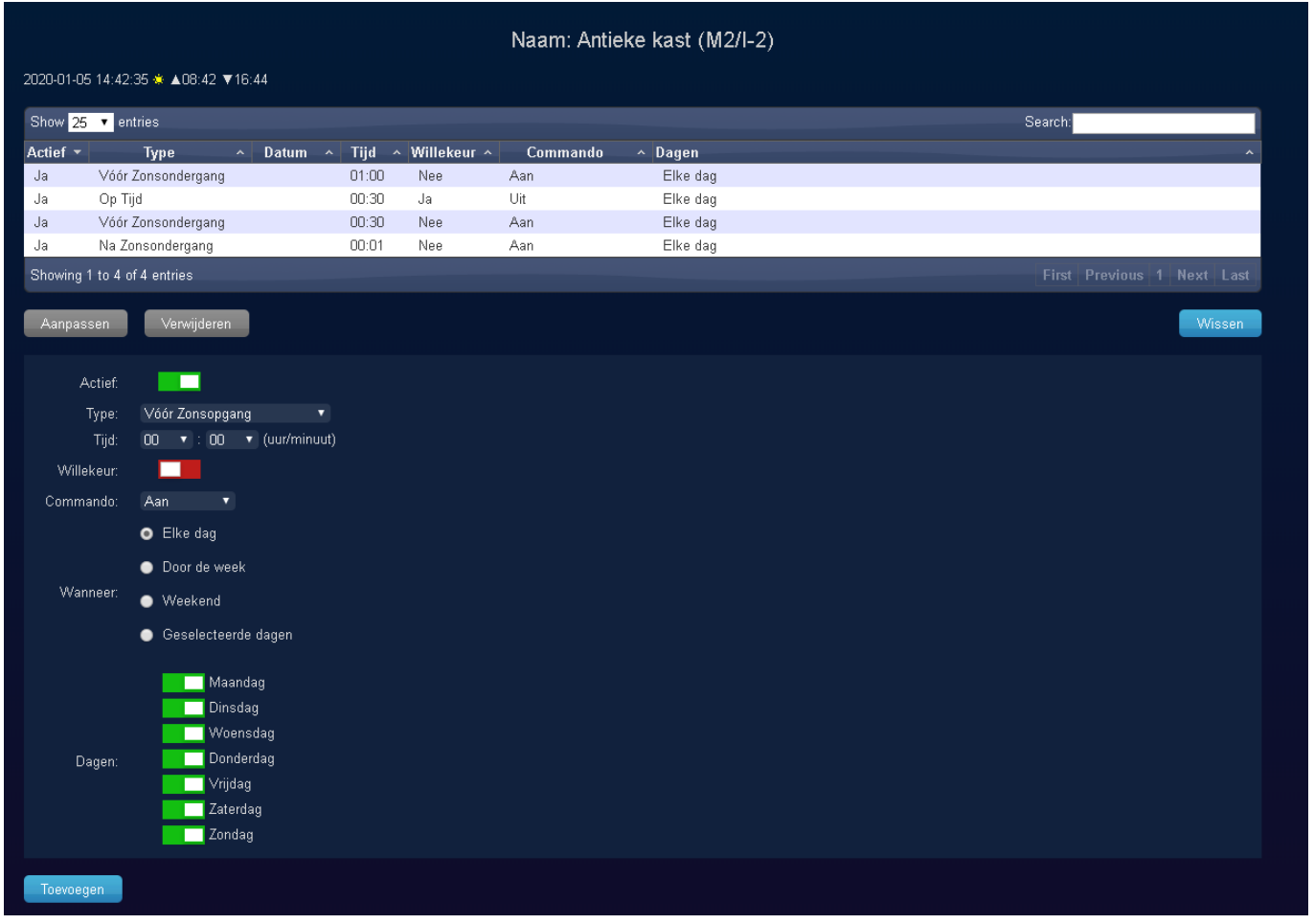


# Raspberry Pi met Domoticz

VOORBEELDEN: Instellen schakelaars

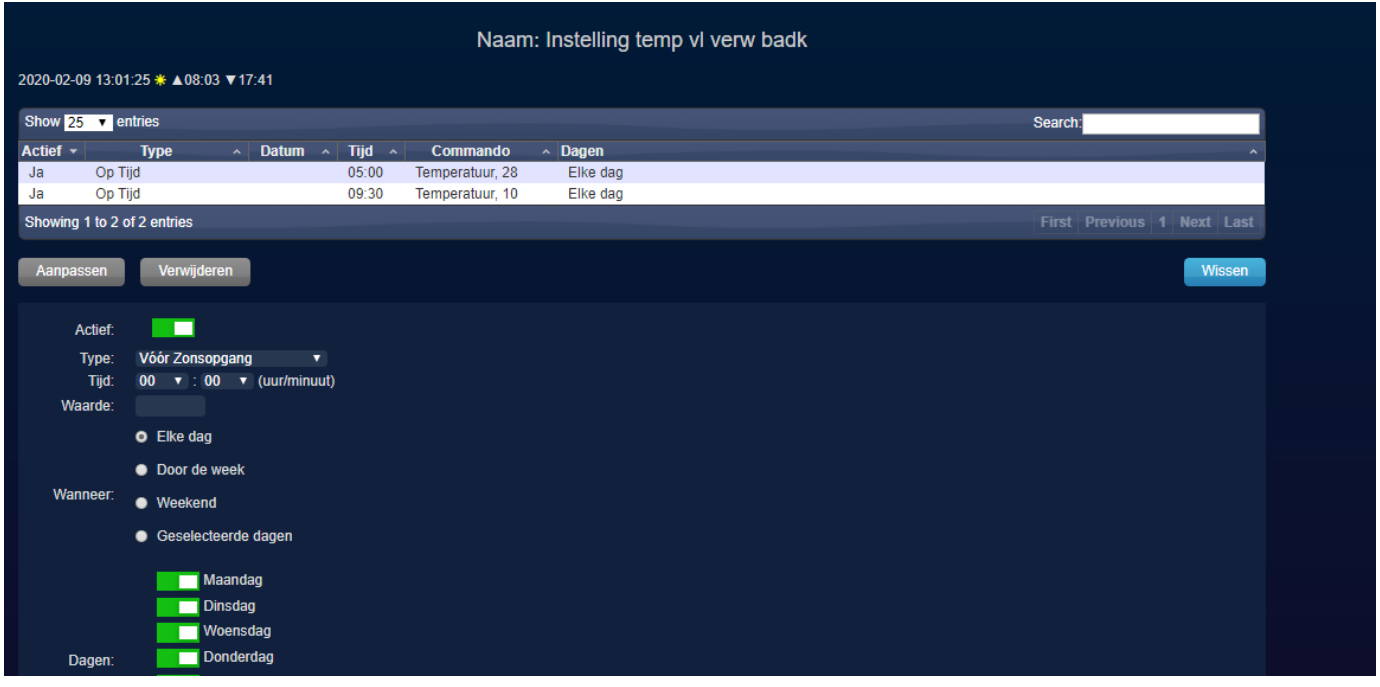
# Raspberry Pi met Domoticz

Instellen
van een schakelaar



# Raspberry Pi met Domoticz

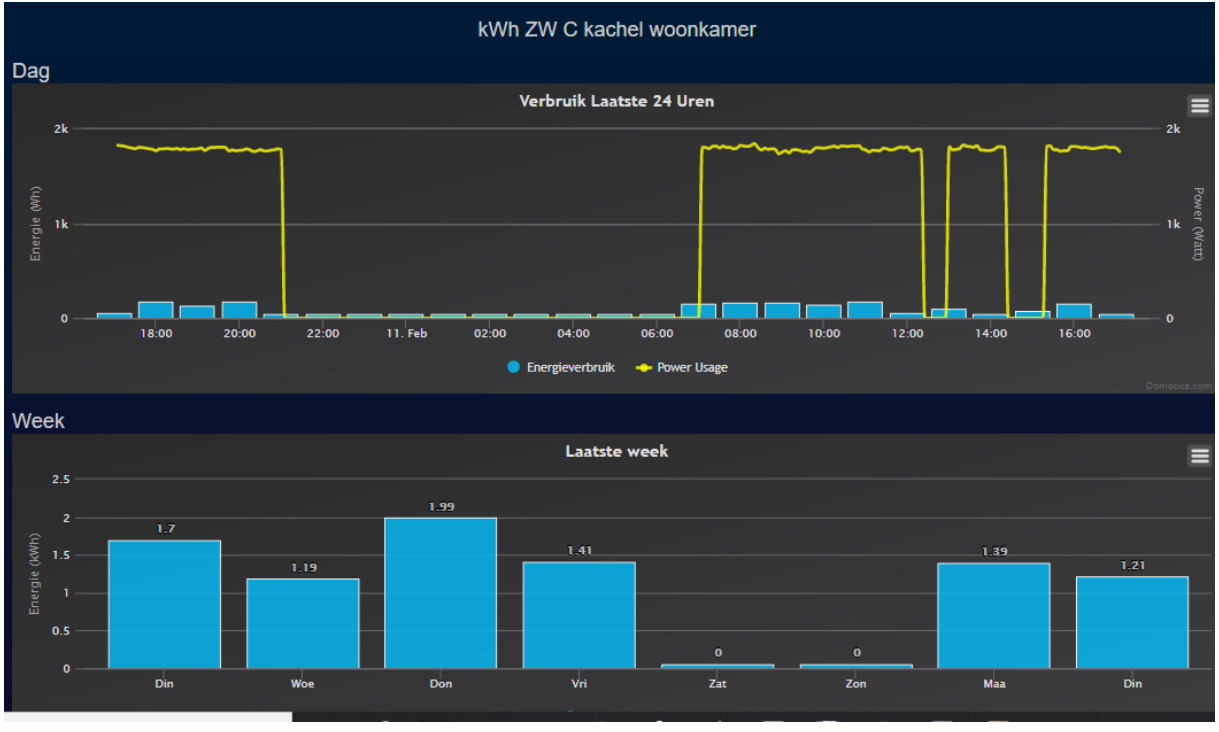
Instellen
vloerverwarming
badkamer



# Raspberry Pi met Domoticz

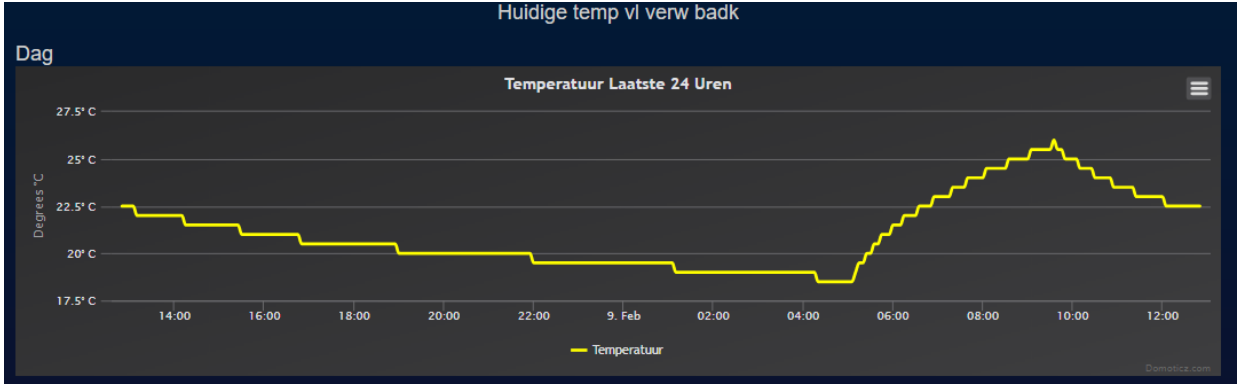
## Verbruik

elektrische radiator
woonkamer

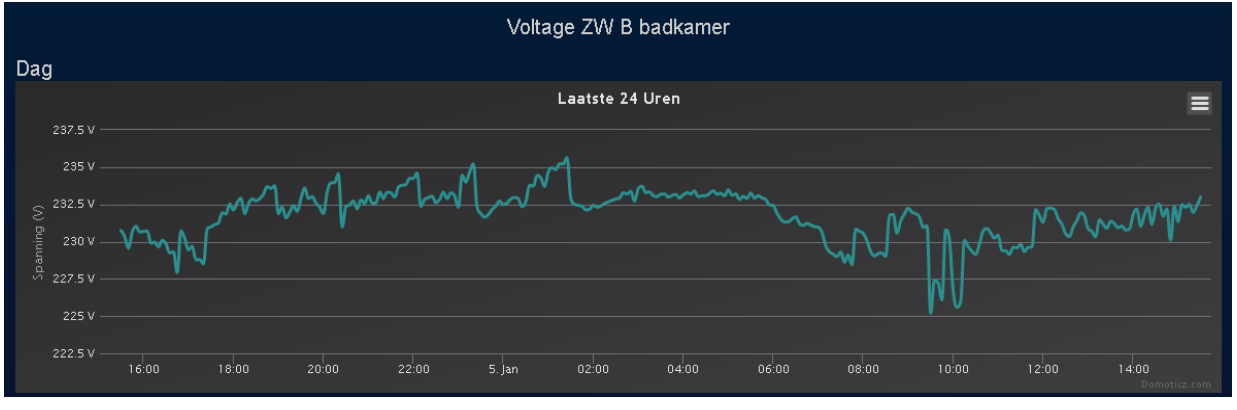


# Raspberry Pi met Domoticz

Temperatuur
vloerverwarming



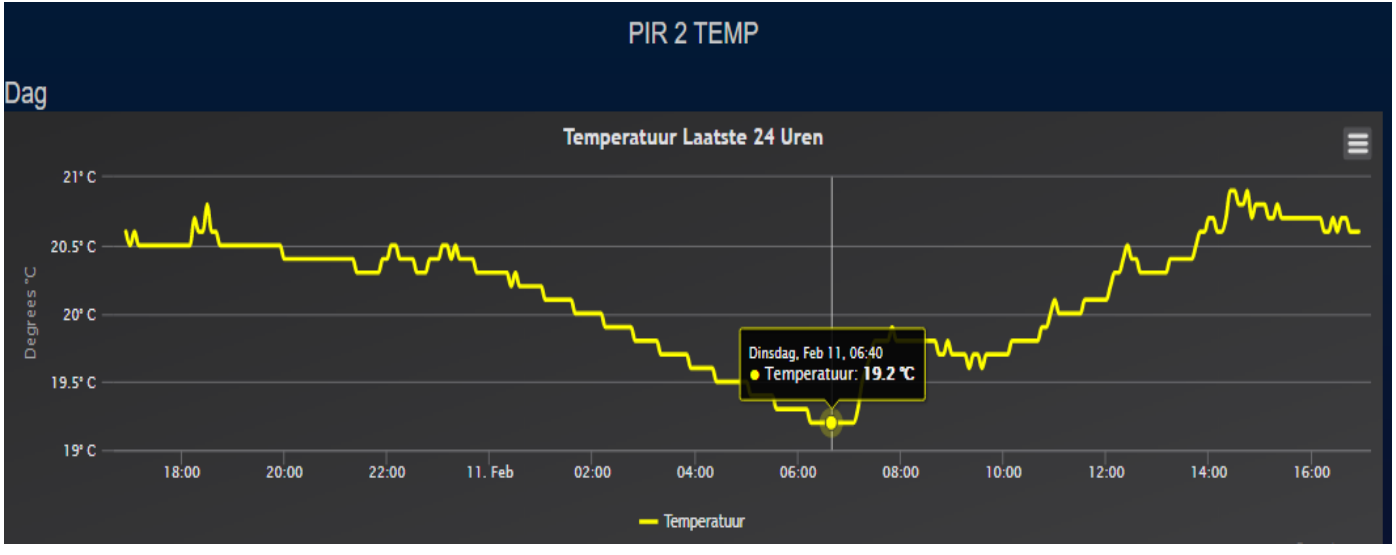

Meting
voltage



# Raspberry Pi met Domoticz

**Woonkamer**:

Meting
temperatuur



# Raspberry Pi met Domoticz

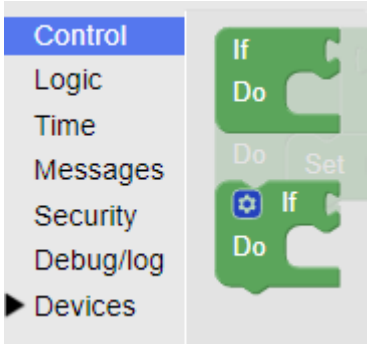
## Verlichting

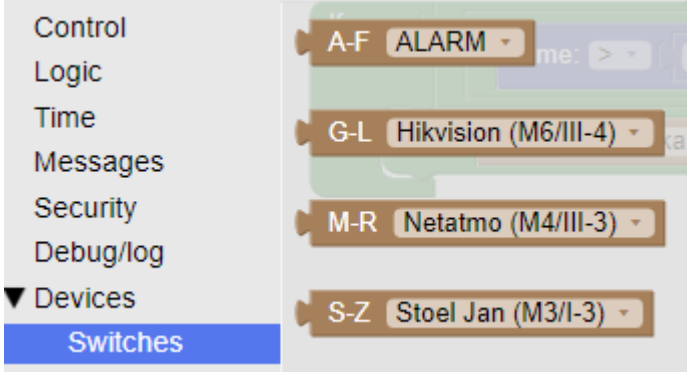
SENIORWEB

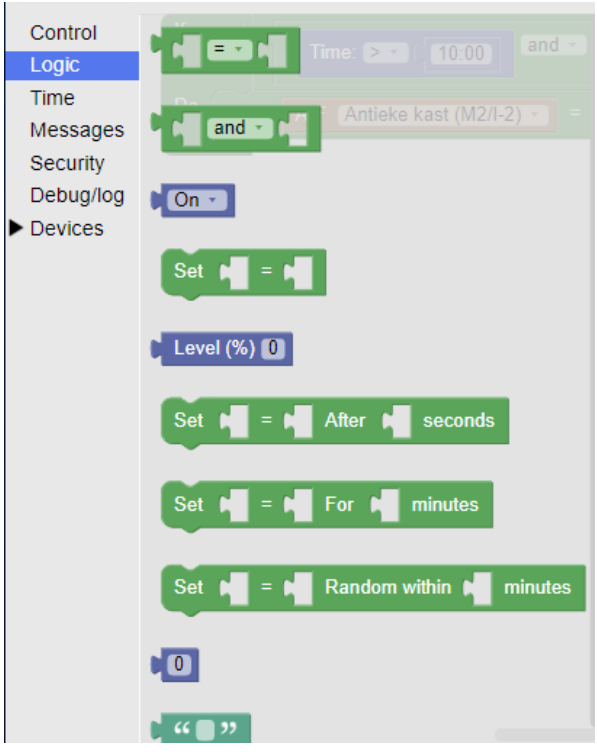
# Scripts

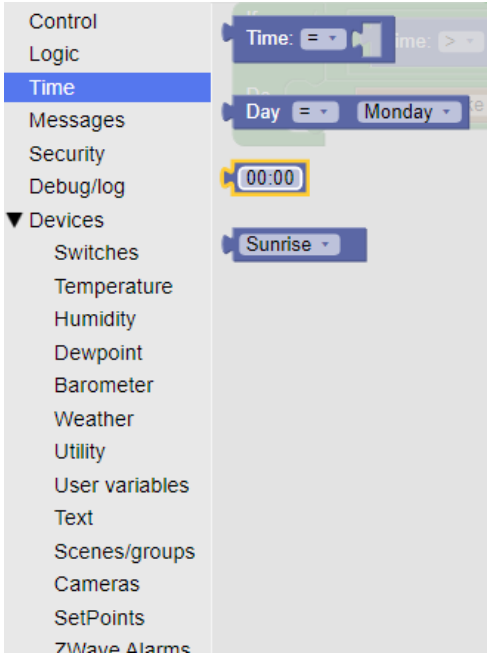
SENIORWEB

# Scripts



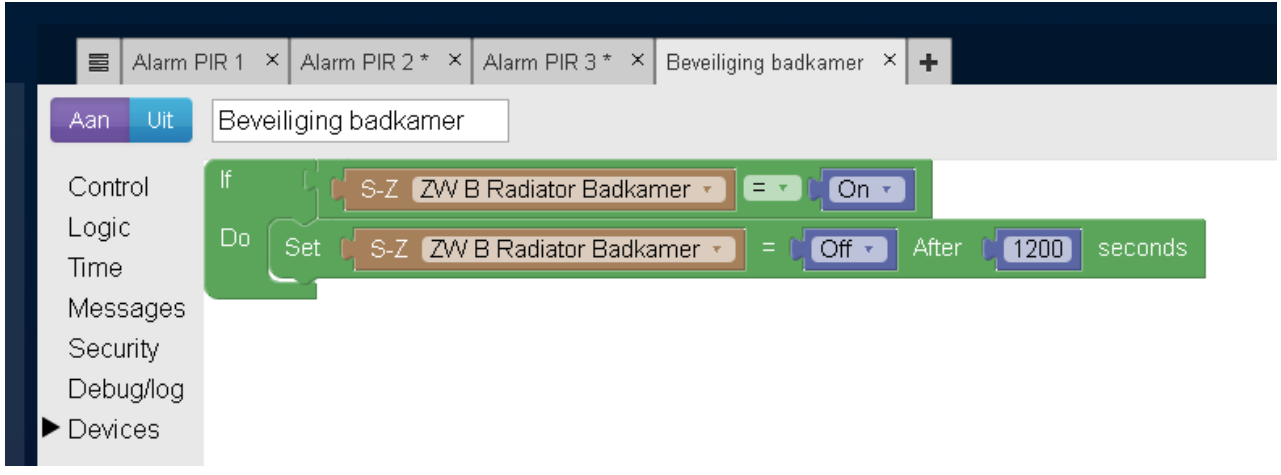



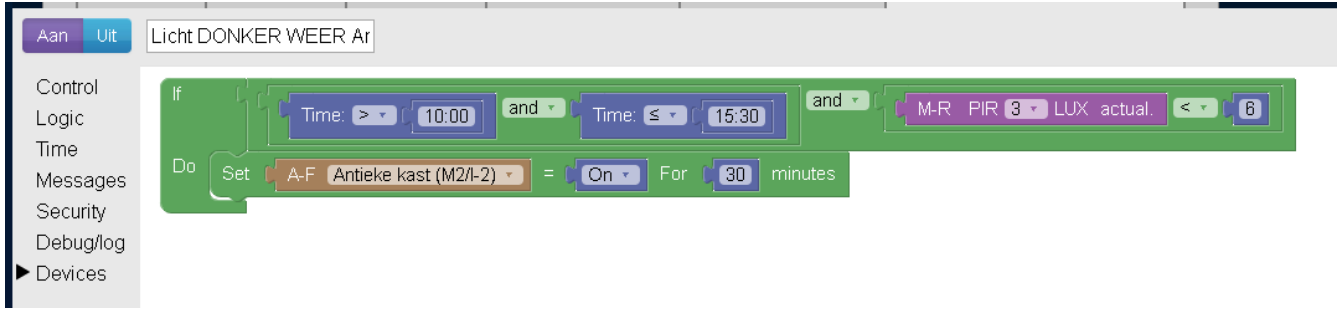



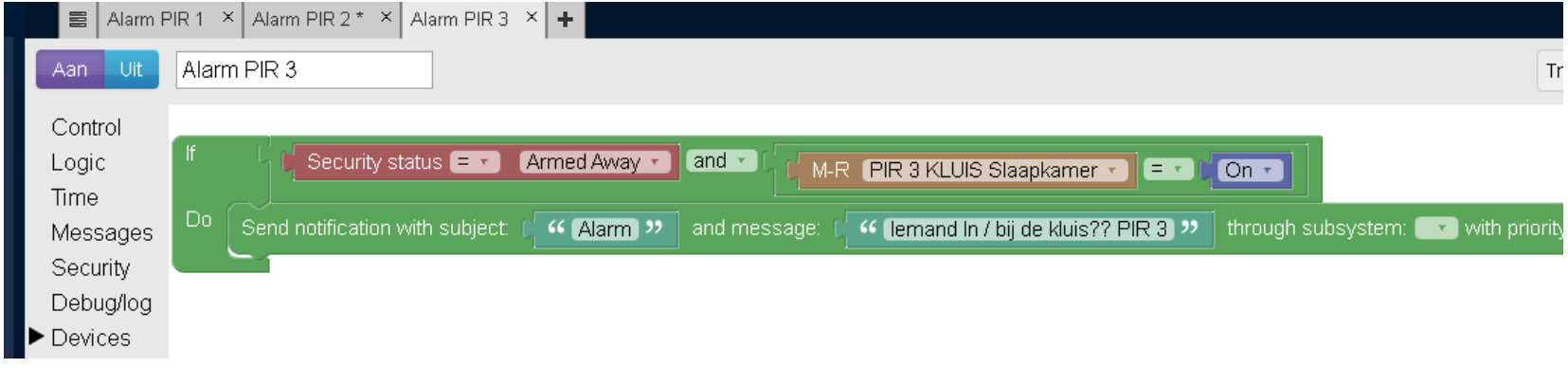
# Raspberry Pi met Domoticz

## Scripts



# Scripts


Alarm PIR 1
Alarm PIR 2 *
Alarm PIR 3
Aan
Uit
Alarm PIR 3
Control
Logic
Time
Messages
Security
Debug/log
Devices
If
Security status = Armed Away and M-R PIR 3 KLUIS Slaapkamer = On
Do
Send notification with subject: “Alarm” and message: “Iemand In / bij de kluis?? PIR 3” through subsystem: with priority

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# Scripts

# Raspberry Pi met Domoticz

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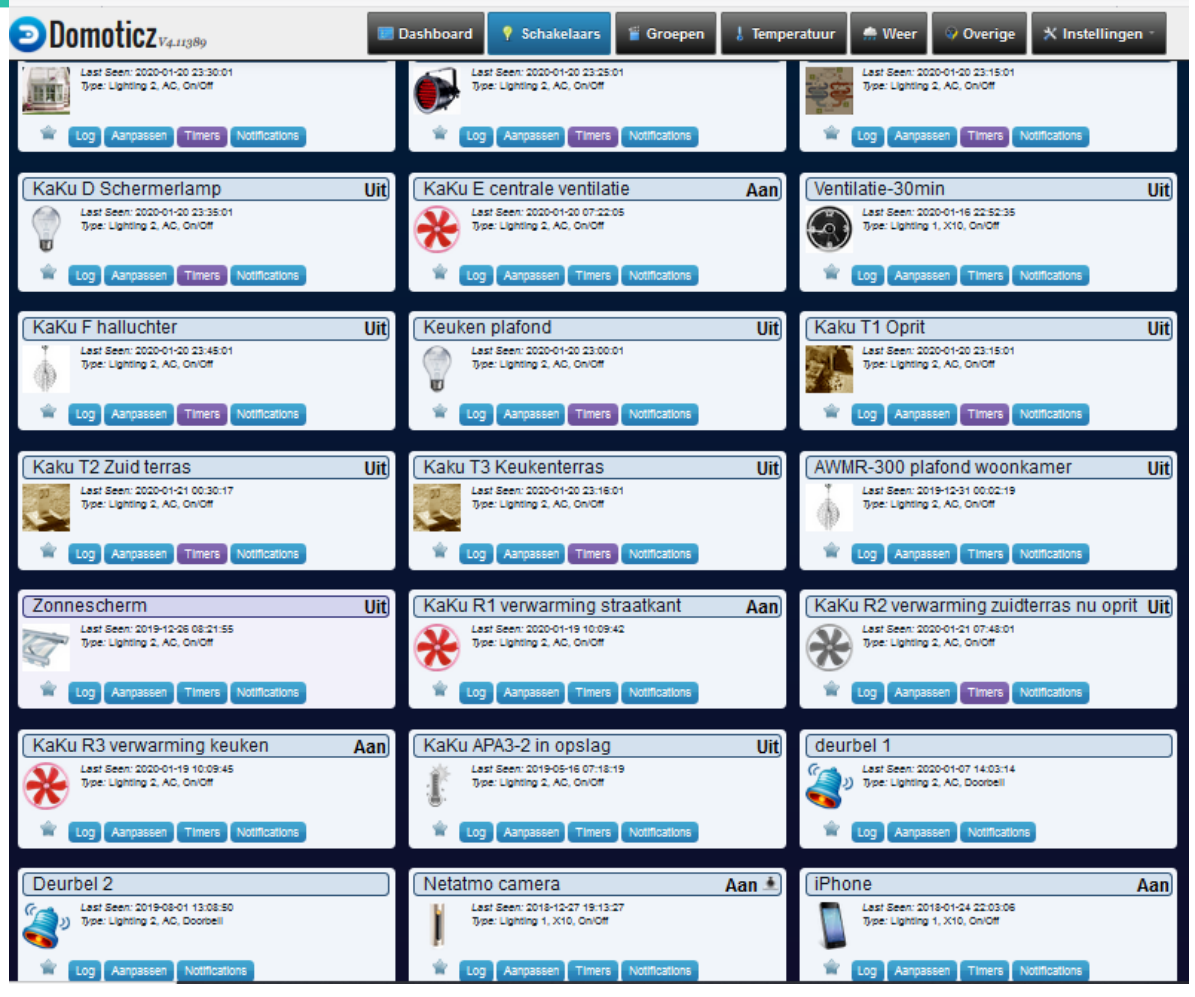
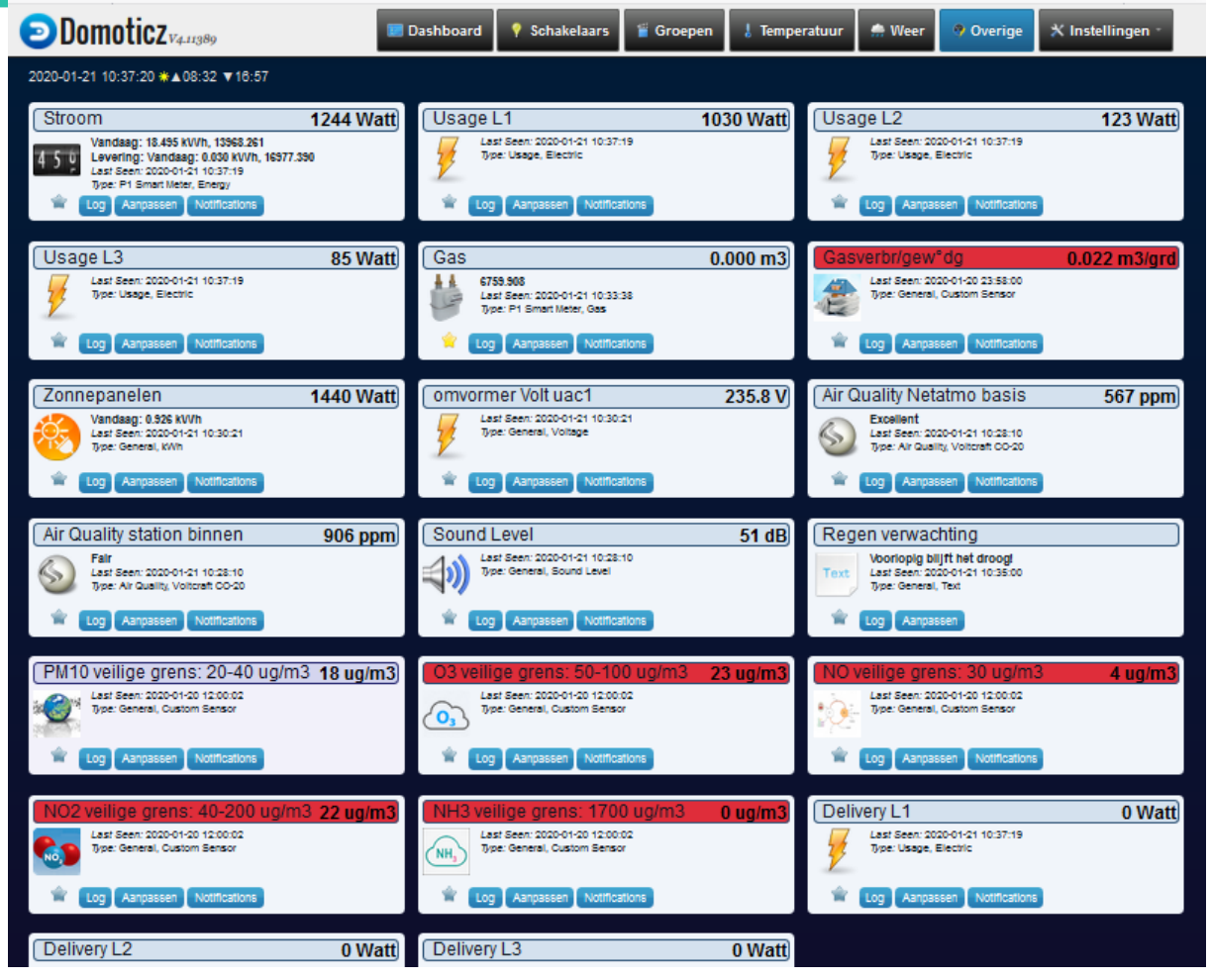
## Veel meer mogelijkheden:



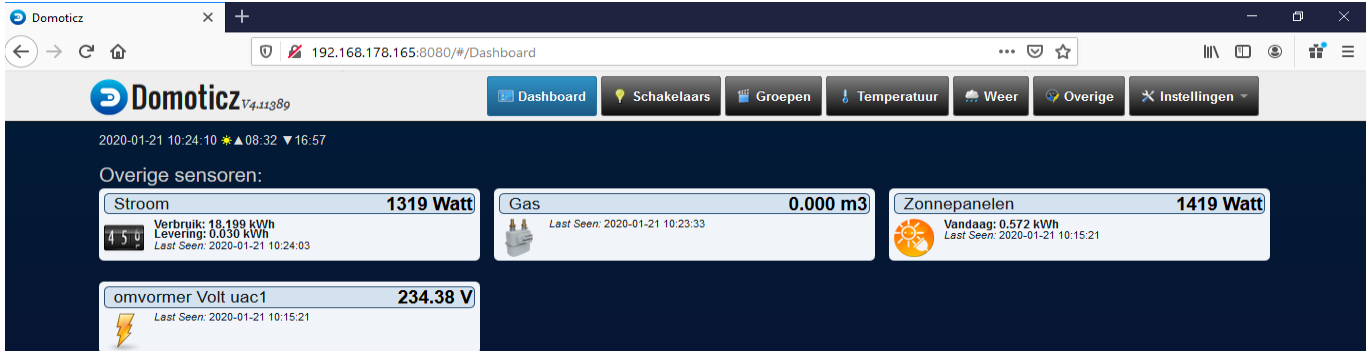
# Raspberry Pi met Domoticz

Veel meer mogelijkheden:



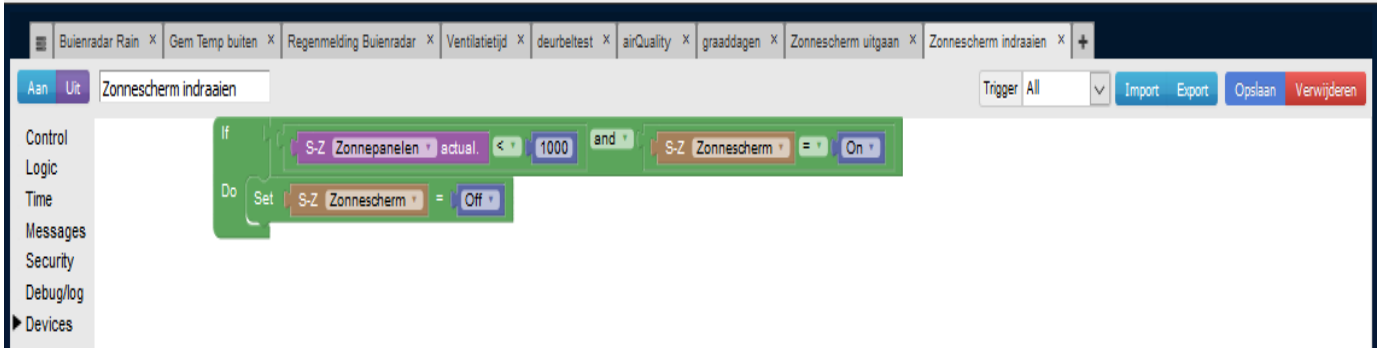
# Raspberry Pi met Domoticz

Monitoring met “slimme meter”




Script:

Zonnescherm afhankelijk van productie zonnepanelen!

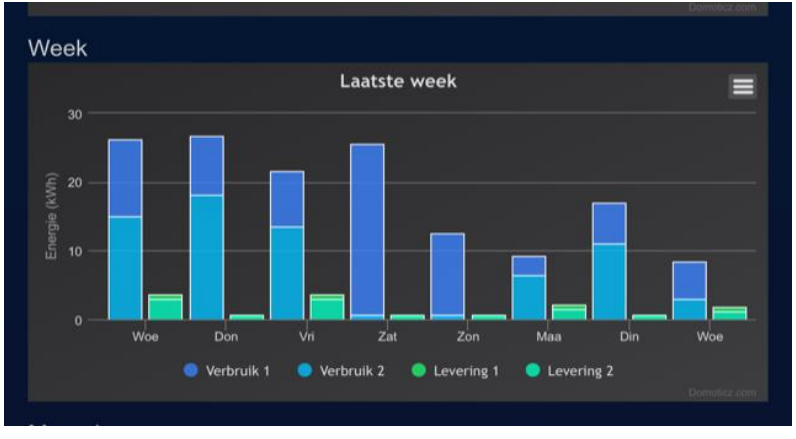


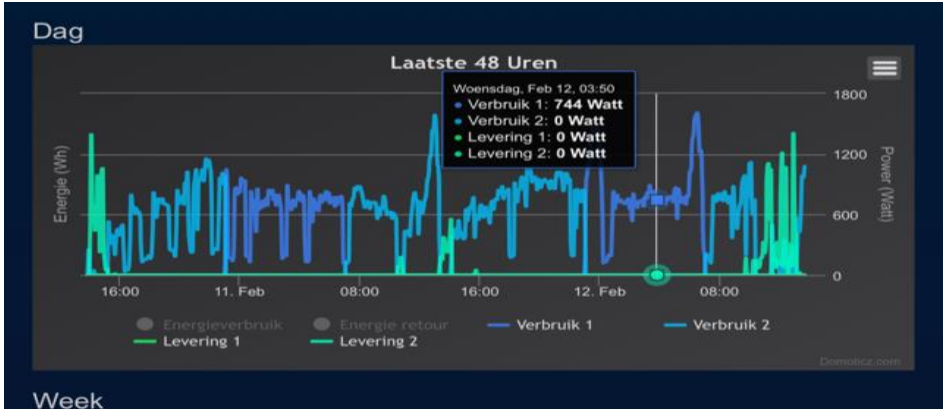
# Raspberry Pi met Domoticz

Nog meer monitoring

# Raspberry Pi met Domoticz

en analyse- of bewakingsmogelijkheden



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# DANK U

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