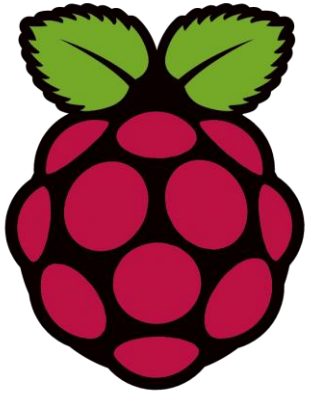


LabVIEW on a Raspberry Pi and LabVIEW NXG Dashboard

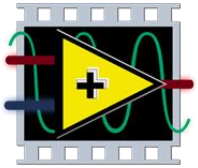
By

Wim Tormans

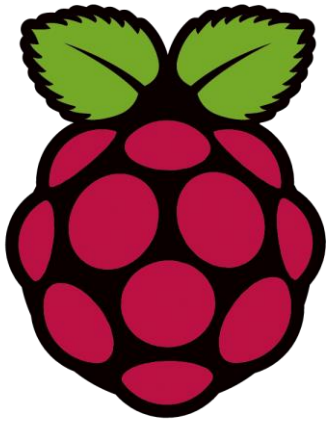
Wim Tormans

- Live in Belgium, work in the Netherlands
- Age: 38 / Married
- Father of 2 (Willeke 9y, Giel 7y)
- Hobbies: Photography, Running, LabVIEW
- Project Architect @ VI Technologies
- Using LabVIEW since 2008
- Using TestStand since 2013
- Certifications:

VI Technologies



LabVIEW



LabVIEW NXG

Agenda

- Demo 1: blinking LED
- Demo 2: I2C sensor
- Demo 3: Telegram bot << at the booth
- Demo 4: Webservice
- Demo 5: Indoormonitoring (T & RH)

https://github.com/wimtormans/NIDays2019_Demo

VIT Technologies

Why Did I start this project

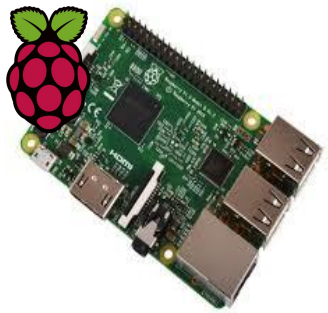
- Thermostat in the wrong room
- Thermostatic cranes not broken
- Steffan = always cold
- Bas = always warm
- Jeffrey = always ‘configuring’ the thermostat and/or cranes

What is the setup?

LabVIEW

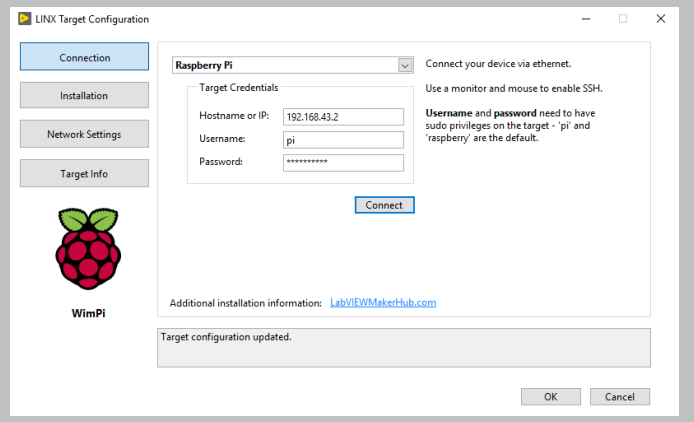
LabVIEW NXG

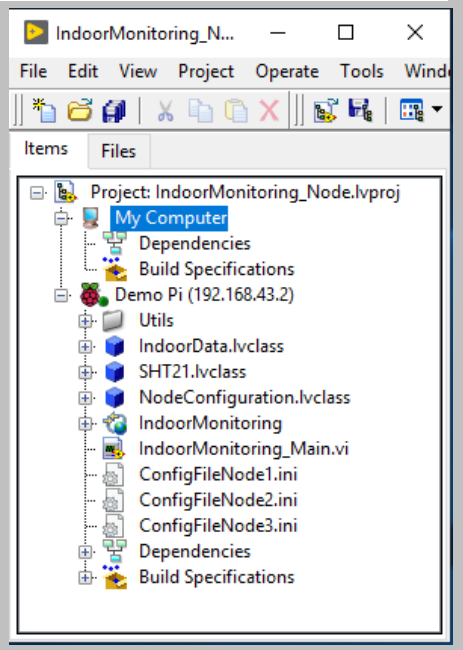
- Raspberry Pi(3B) €38,00
- SHT21 I2C sensor €1,00
- Raspberry Pi case €7,00
- LINX toolkit €0,00
- LabVIEW CE €0,00



Raspberry Pi Installation

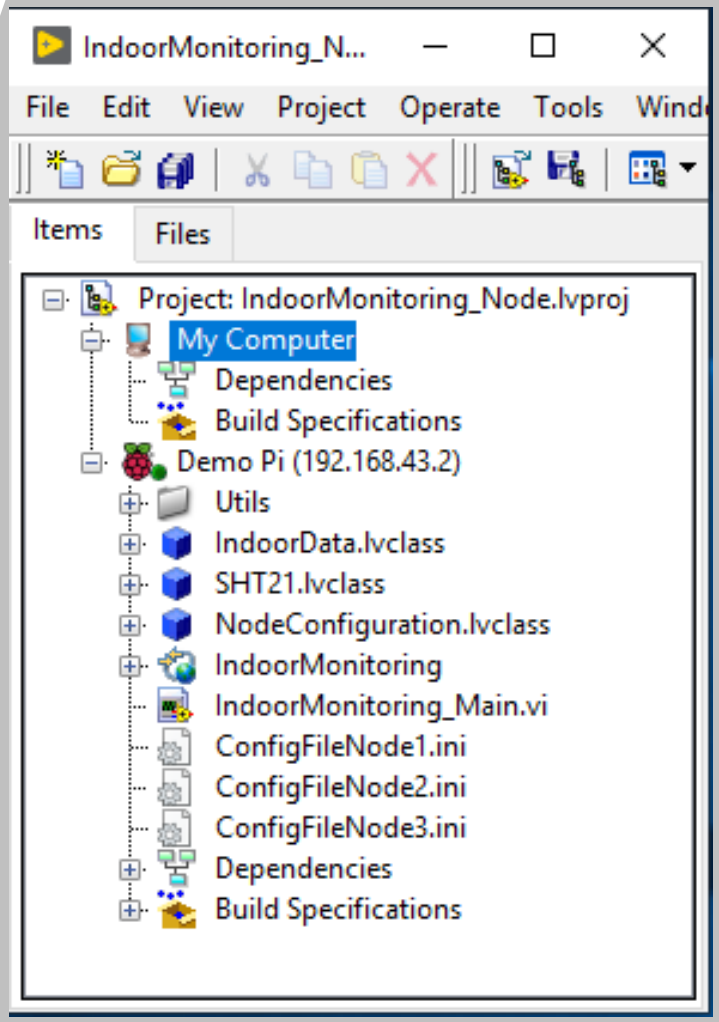
- Download Raspbian image from raspberrypi.org
- Flash the image with Win32DiskImager on uSD
- Boot and Configure your RPI
- Install LabVIEW2020 CE
- Use the Target Configuration Wizard
- Add a new LINX device to a project





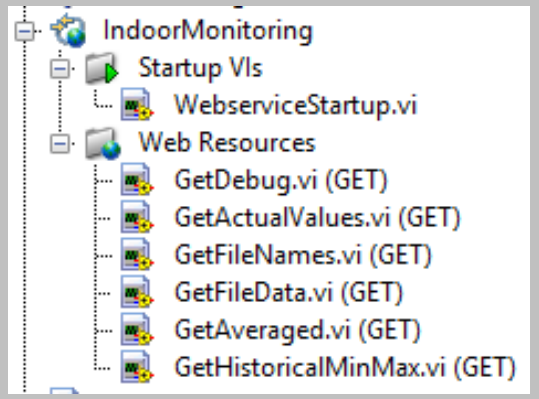
Raspberry Pi IndoorMonitoring

- IndoorData.lvclass (GOOP4 Singleton)
  - Processing of the measurement data
  - Used in main.vi AND in the webservice
- SHT21.lvclass
  - Sensor reading
  - Uses LINX library
- NodeConfiguration.lvclass
  - Configuration file
- IndoorMonitoring Webservice
  - API to access the data
- IndoorMonitoring_Main.vi

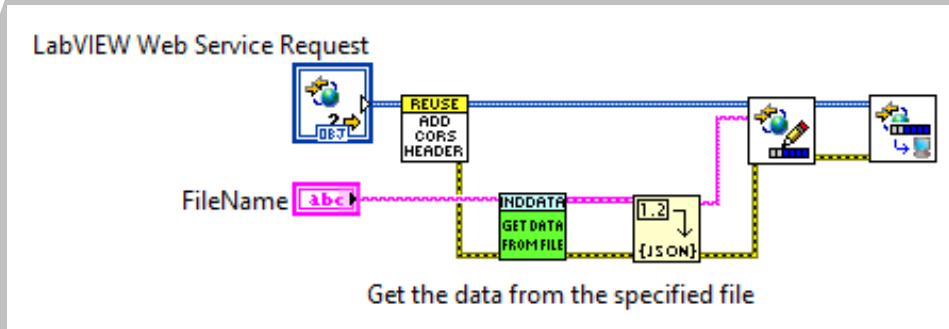


IndoorMonitoring WebService

- WebResources:
  - API to the outside world (-> Decoupled UI)
  - VI executes when URL is called
  - VI can have parameters (Ex. Filename)
  - Parameters are in the URL



http://"IPAddress":8002/WebServiceName/VIName

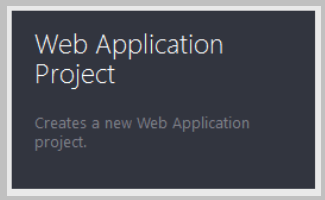


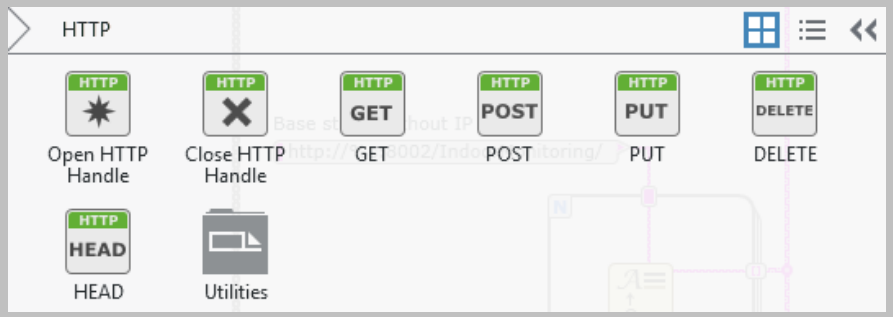
LabVIEW NXG WebVI

- LabVIEW NXG (3.1.1) + NXG WebModule
- Web Application Project
- Use HTTP palette to access the webservice
- Host WebVI on a webserver (RPi)

LabVIEW NXG

NXG Web Module





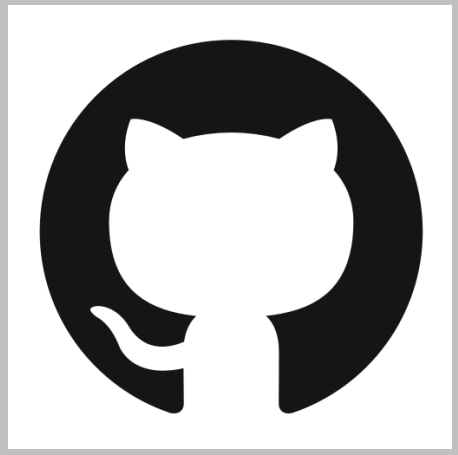
Links

Tools:

- Win32DiskImager (To write an image to uSD)
- WinSCP (Copy Files to RPI)
- VNC Viewer (Open a UI to RPI)
- Putty (SSH to RPI)

Github repo's:

- Wim Tormans



DEMO