Demo Board 2

Front side

General

On this page you will find the process of the **installation** & the **configuration** of 1 of our **Demo Boards**. I will refer to this board as the **level meter board.**

There are currently 3 **Demo Boards** being tested in our **affiliate** in **Turnhout**.
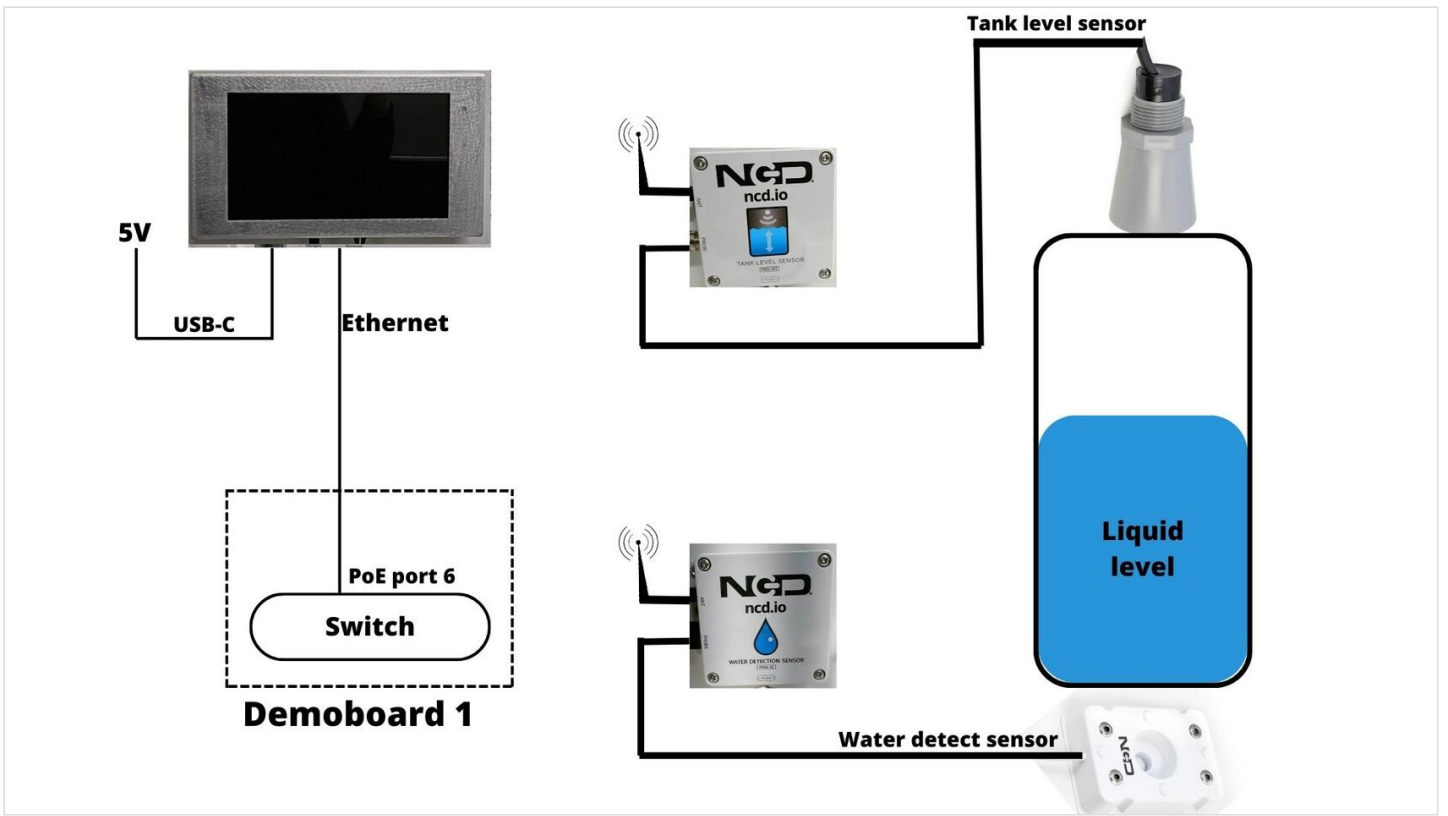
Description

Demo board 2 is a board that can **measure** the amount of **liquid** that is still left in the tank. There is also another sensor that can **detect water**.
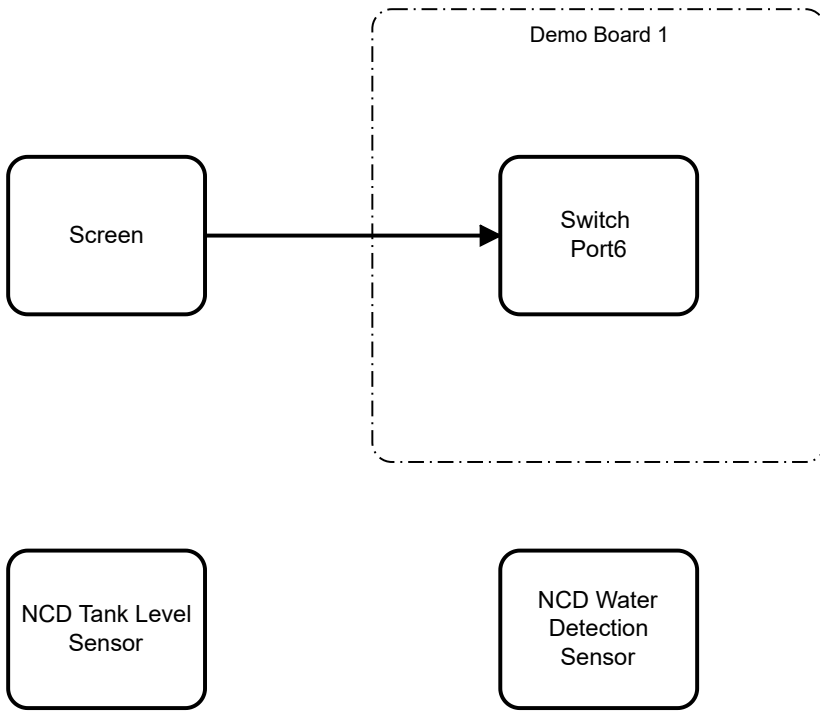
Schematics

Visual schematic

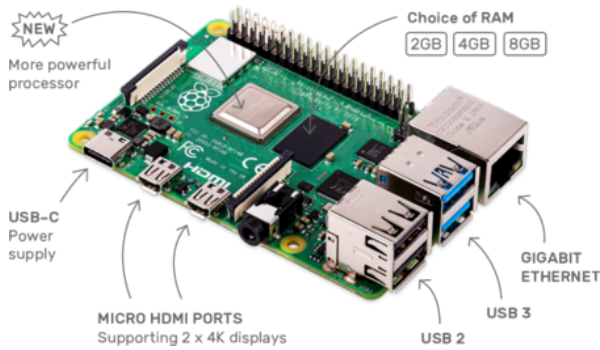A schematic overview of the installed modules on the **level meter board**.

BPMN schematic

Demo Board 1

```
Screen  ────────────▶  Switch
                       Port6
```

```
NCD Tank Level                 NCD Water
Sensor                         Detection
                               Sensor
```

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Components

- 1x Raspberry Pi 4 B's 8GB (https://www.raspberrypi.com/products/raspberry-pi-4-model-b/)

- 1x HMTECH 10" display (https://www.amazon.com/HMTECH-Raspberry-Touchscreen-1024x600-Portabl

e/dp/B0987468N2)

- 1x USB-C power supply (https://www.sossolutions.nl/3a-usb-c-voedingsadapter-voor-raspberry-pi-4?gclid
=Cj0KCQiA0oagBhDHARIsAI-BbgfYDe0NciZEuTCj58KnTNkzp9ccT42XB9CHikkBCmmCseNA4Y4NnTg

aAtHbEALw_wcB)

- 1x NCD tank level sensor (https://store.ncd.io/product/tank-level-sensor-ultrasonic-wireless/)

- 1x NCD water detection sensor (https://store.ncd.io/product/industrial-iot-wireless-water-detect-sensor/)

Configuration

Hardware

The screen is connected to the switch with an ethernet cable.

Switch connection

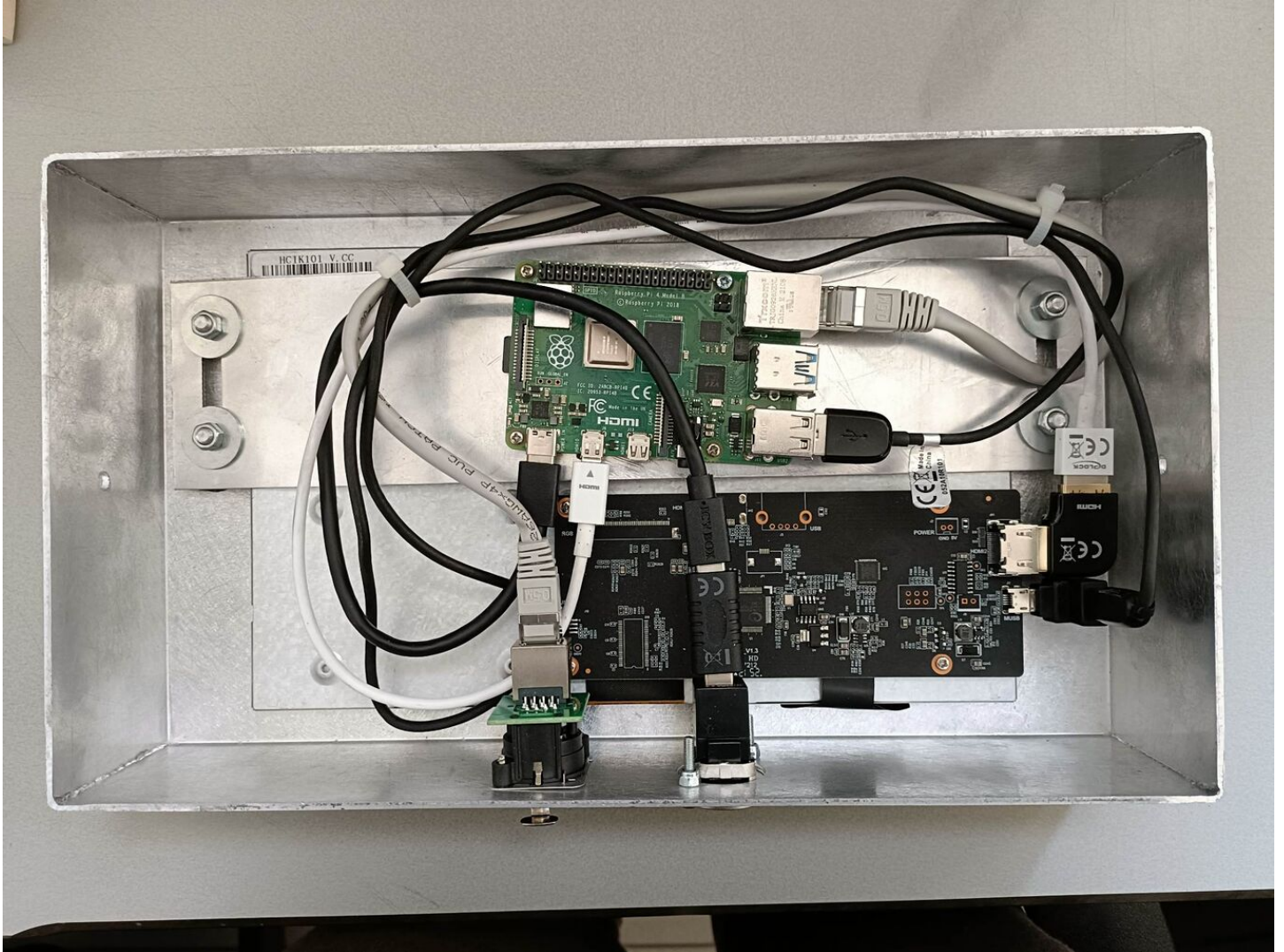| Demo board 2	Switch	IP
Screen	Port 6	**10.1.65.115**

If you want to establish a remote connection, install VNC Viewer (https://www.realvnc.com/en/connect/downlo ad/viewer/)
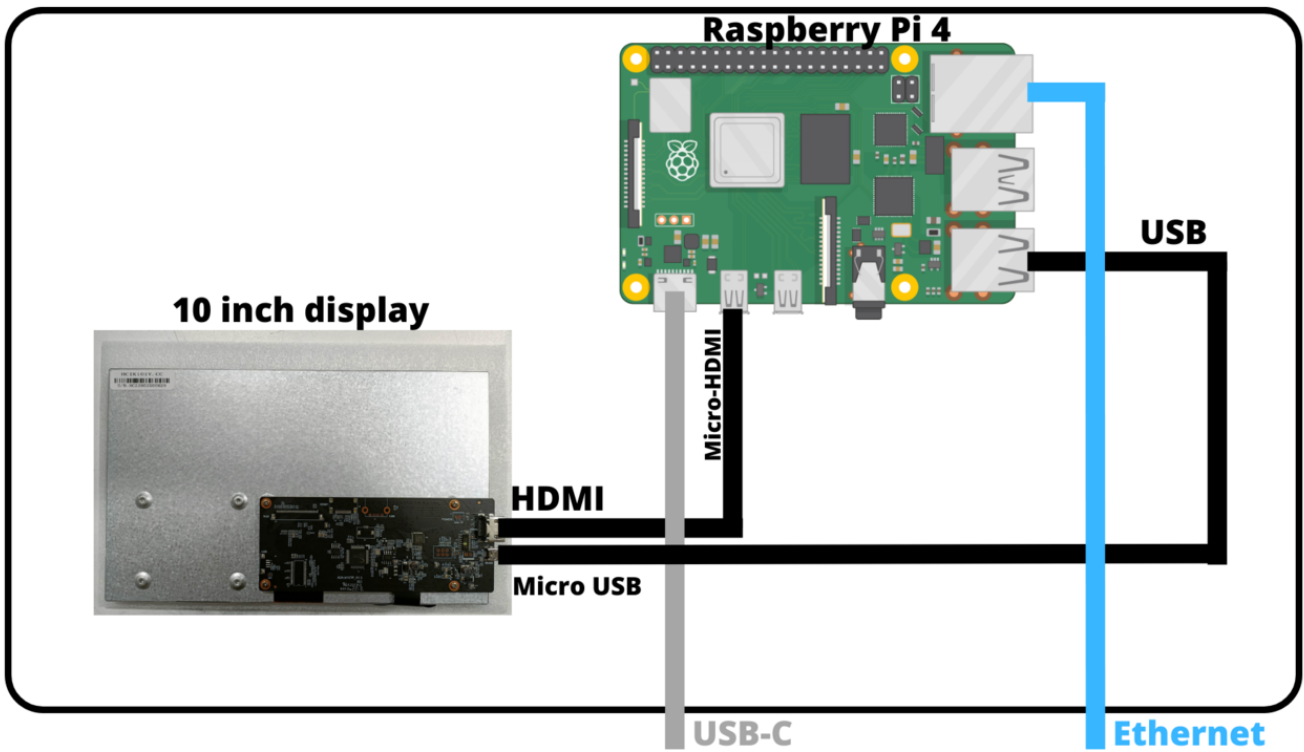
Screen

A Raspberry Pi is connected to the 10" display with an HDMI cable.

Build overview

Schematic overview

Software

Node-Red

Node-RED is a programming tool for wiring together hardware devices, APIs and online services in new and interesting ways.

It provides a browser-based editor that makes it easy to wire together flows using the wide range of nodes in the palette that can be deployed to its runtime in a single-click.
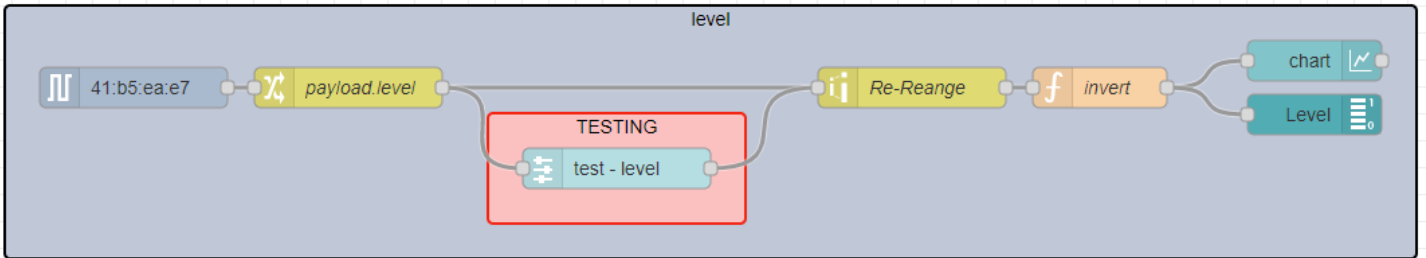
Node-red is already installed on the Raspberry Pi

If you want to install Node-Red yourself, follow the procedure on their website.

Official site: https://nodered.org/

In our case Node-Red is already installed on the smartbox.

Node-red configuration: http://10.1.60.233:1880/

OS

We can access the screen's OS with ssh. Ssh allows you to login to the pi's terminal.

Hostname	RPI Version	Environment	OS	Location	IP	Owner	Status
raspberrypi	RPI4	/	raspios_arm64 (https://downloads.raspberrypi.org/raspios_arm64/images/)	Imas	10.1.65.115	Demoboard 2	Online

Login

```
ssh pi@10.1.65.115                                                    Copy Code
```

NOTE: The password can be found in Keepass

Startup script

This script automatically sets the screen into kiosk mode. This means it can only be used as a monitor and not an editor.
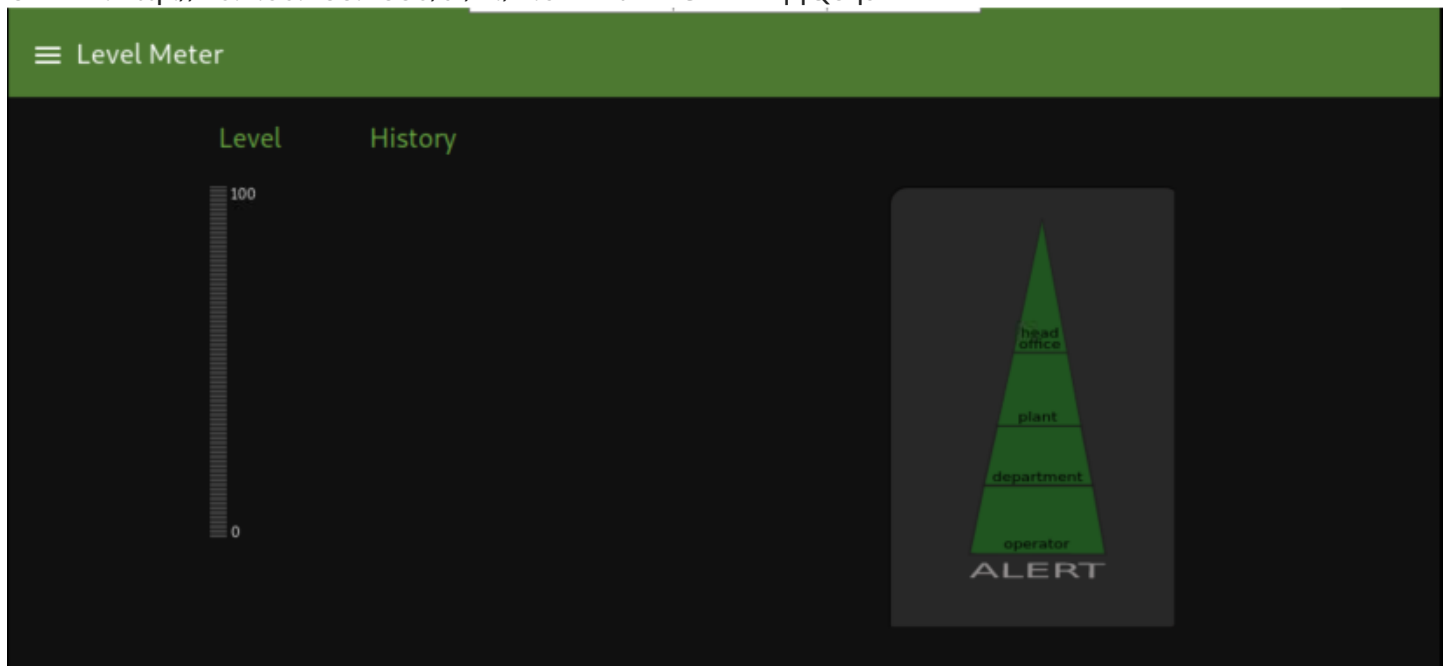
browser_startup.sh

```bash
#!/bin/bash
i=0
while ! ping -c 1 -n -w 1 10.1.60.233 &> /dev/null
do
    ((i++))
done
export DISPLAY=:0.0
firefox --kiosk "http://10.1.60.233:1880/ui/#!/4?socketid=IGVRXnqqQ8qs1kTWAADN"
```

Copy Code

The script opens a firefox browser an goes to the user interface of Node-Red.

UI view: http://10.1.60.233:1880/ui/#!/4?socketid=IGVRXnqqQ8qs1kTWAADN

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DemoBoards   VGPIoT