LabVIEW a hobbielektronikában

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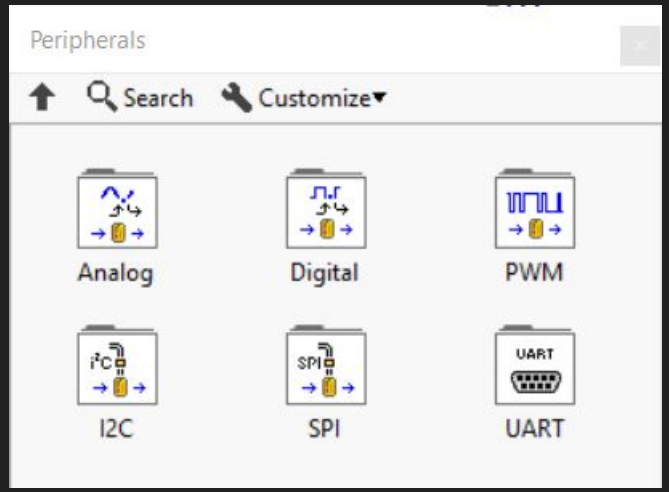
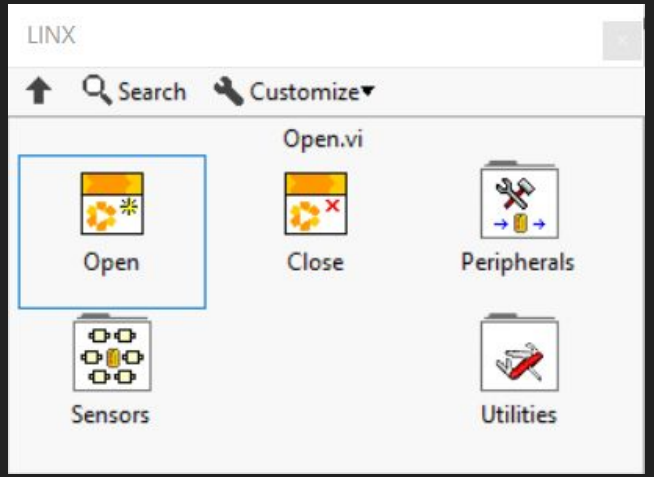
Miről is lesz szó?

- labview community edition
- raspberry PI
  - szenzorok
  - vezérlők
  - python kikancsintó
- arduino

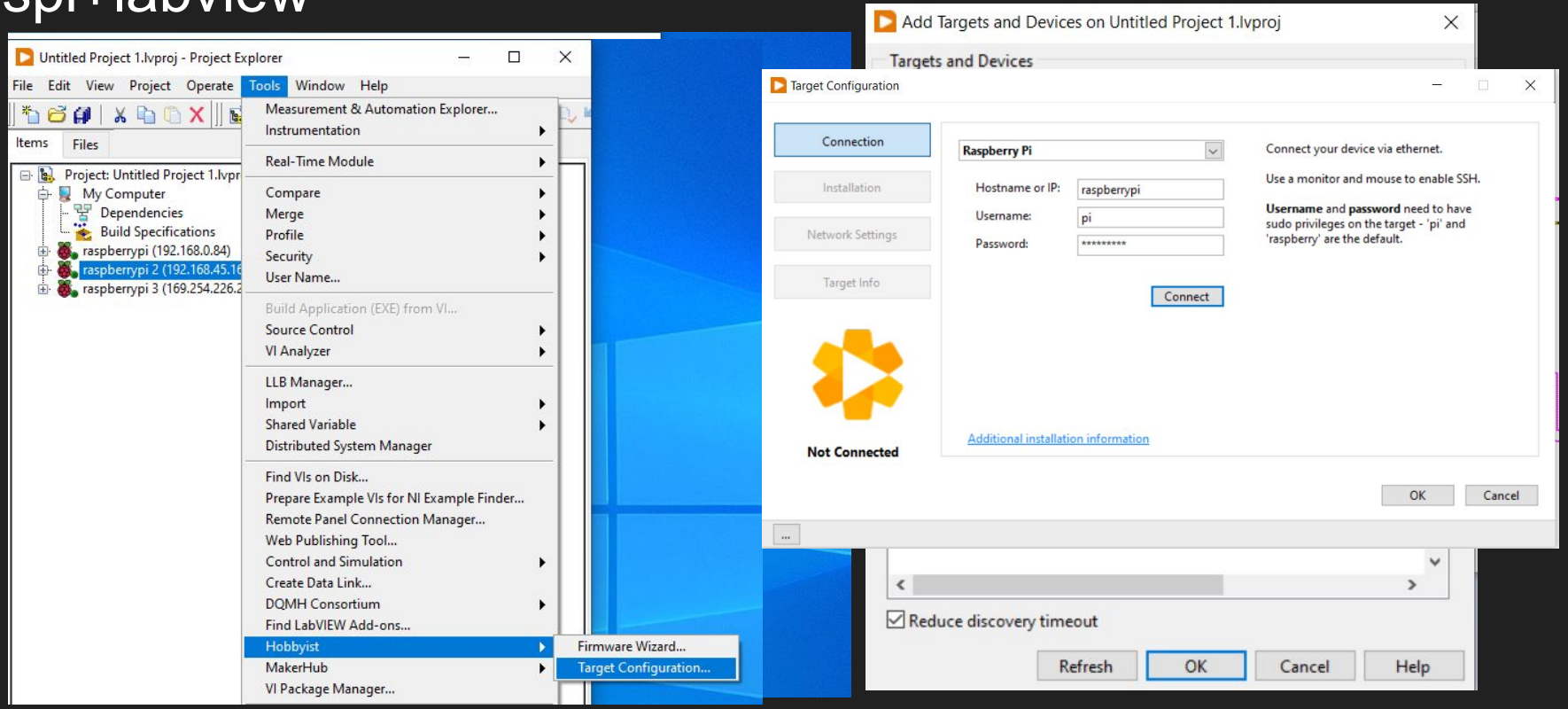
labview community

- Ingyenes
- linx toolkit
  - digital I/O
  - analóg I/O
  - SPI
  - I2C
  - …

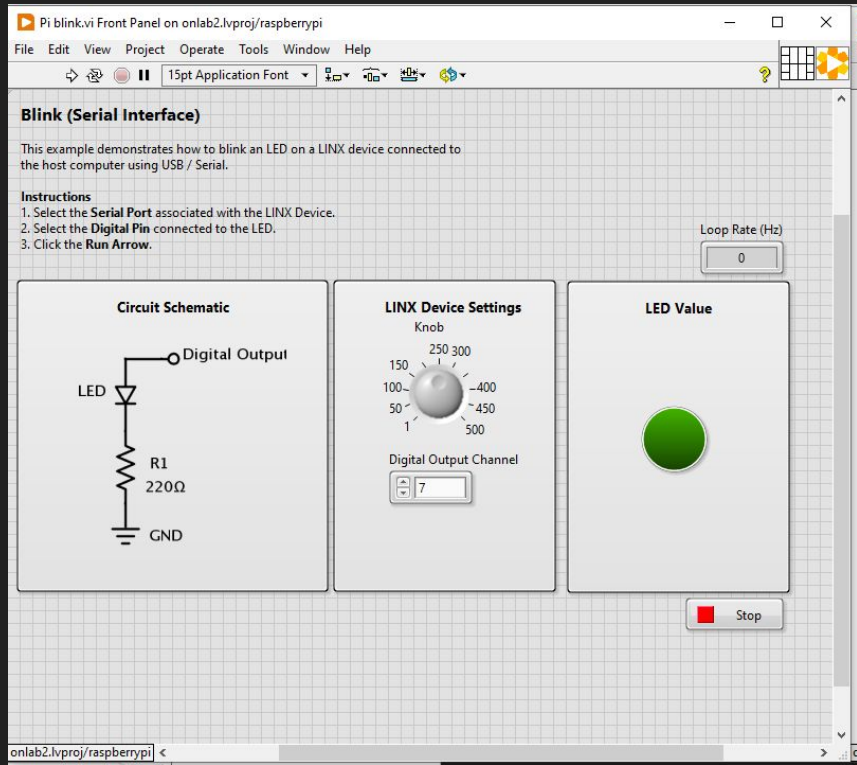


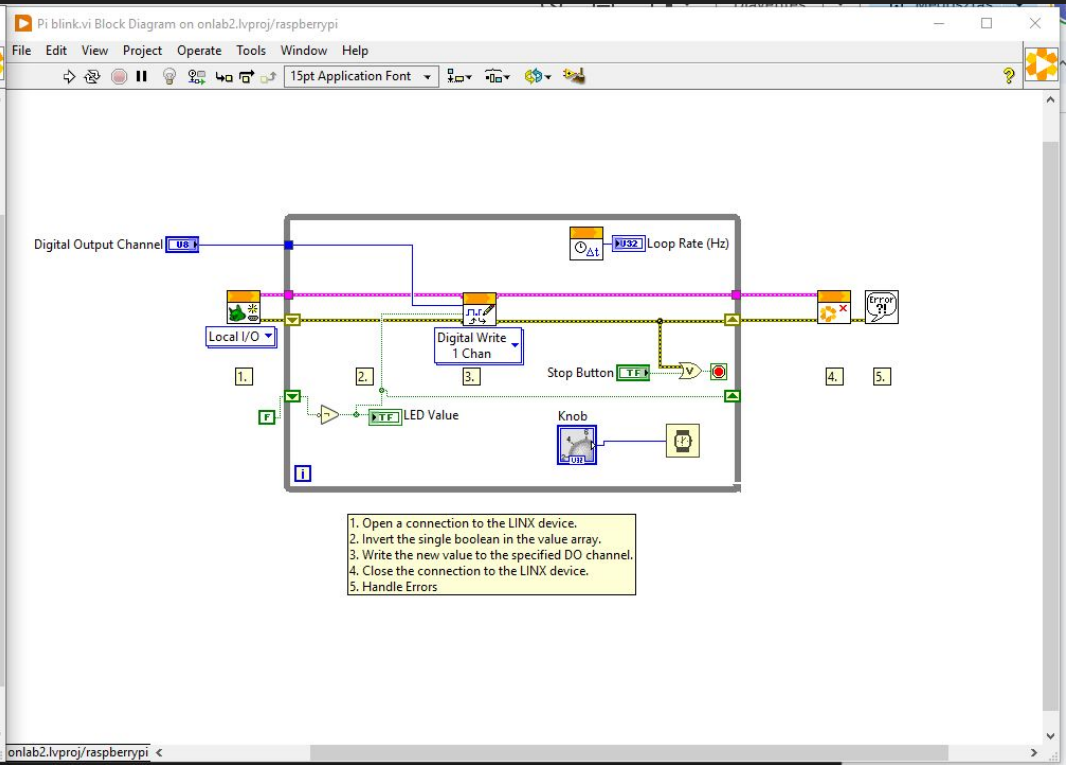


raspi+labview

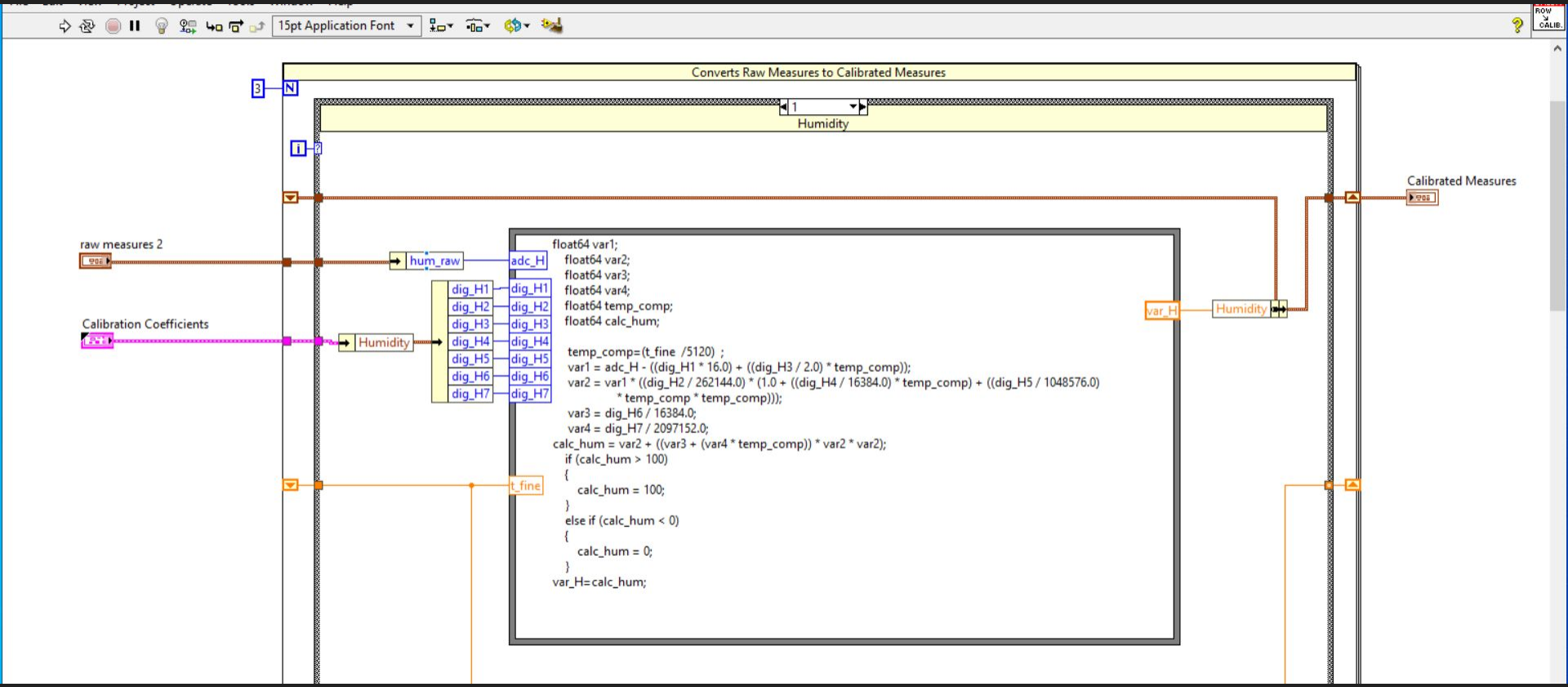


blink.vi

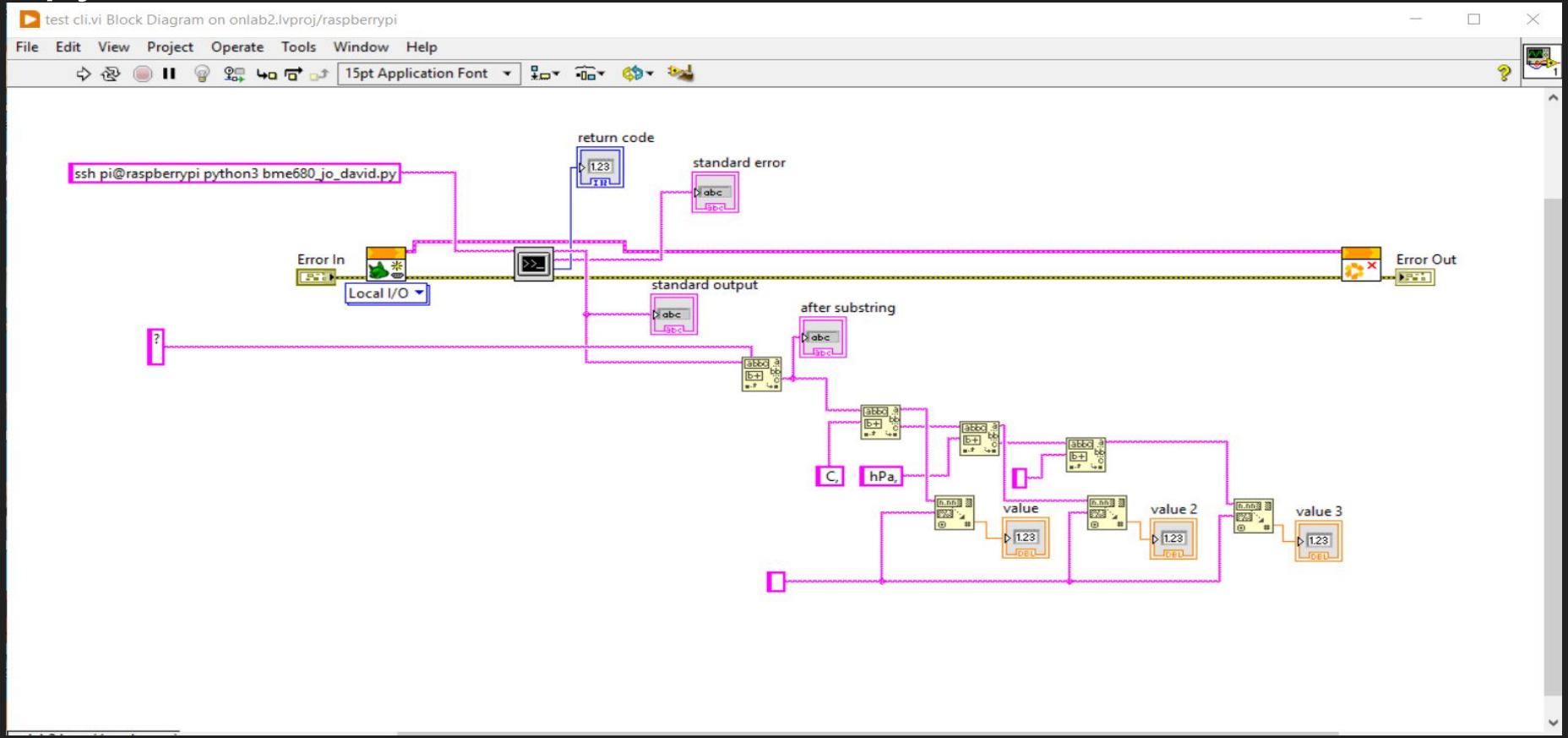

Pi blink.vi Front Panel on onlab2.lvproj/raspberrypi
File Edit View Project Operate Tools Window Help
15pt Application Font
Blink (Serial Interface)
This example demonstrates how to blink an LED on a LINX device connected to the host computer using USB / Serial.
Instructions
1. Select the Serial Port associated with the LINX Device.
2. Select the Digital Pin connected to the LED.
3. Click the Run Arrow.
Loop Rate (Hz)
0
Circuit Schematic
Digital Output
LED
R1
220Ω
GND
LINX Device Settings
Knob
Digital Output Channel
7
LED Value
Stop
onlab2.lvproj/raspberrypi


Pi blink.vi Block Diagram on onlab2.lvproj/raspberrypi
File Edit View Project Operate Tools Window Help
15pt Application Font
Digital Output Channel
U8
Loop Rate (Hz)
I32
Local I/O
Digital Write
1 Chan
Stop Button
TF
LED Value
Knob
1.
2.
3.
4.
5.
1. Open a connection to the LINX device.
2. Invert the single boolean in the value array.
3. Write the new value to the specified DO channel.
4. Close the connection to the LINX device.
5. Handle Errors
onlab2.lvproj/raspberrypi

sensorok

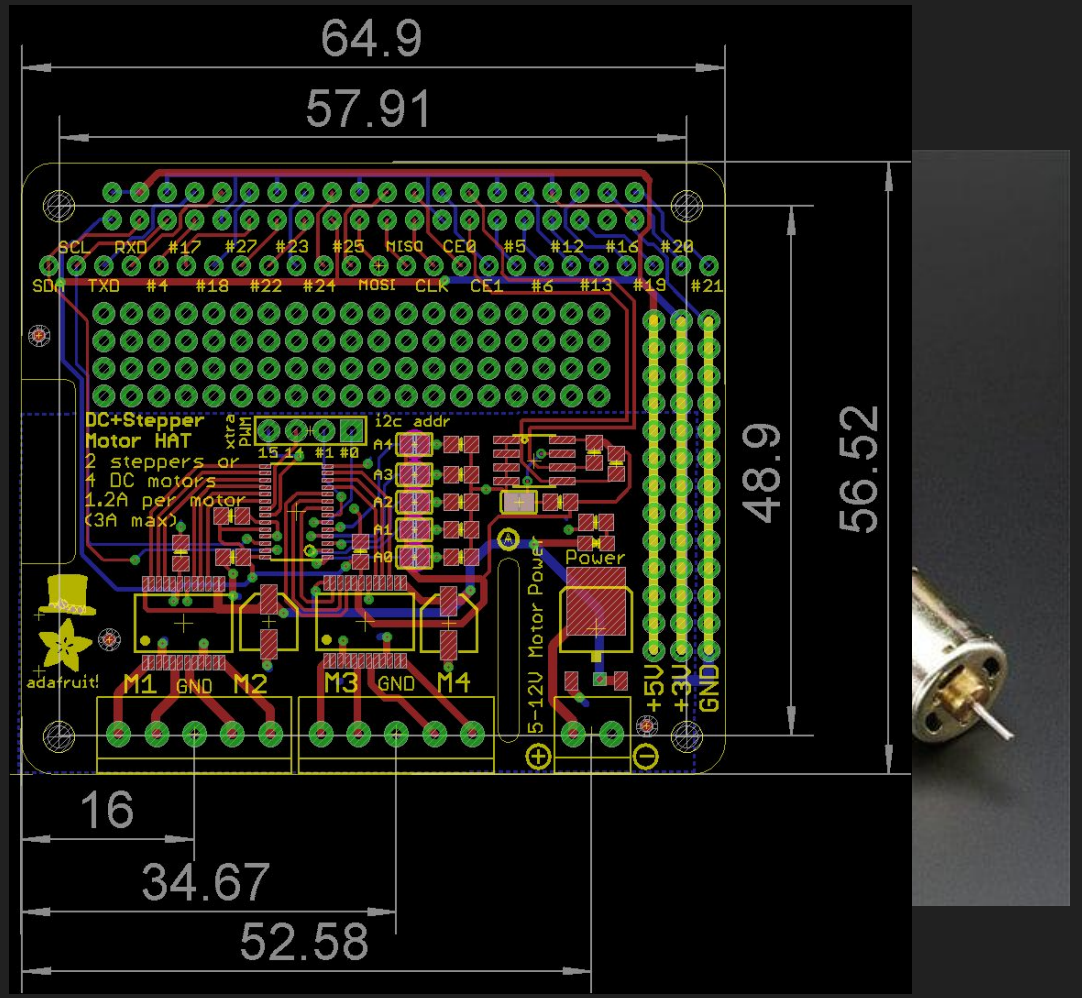

15pt Application Font
Converts Raw Measures to Calibrated Measures
Humidity
Calibrated Measures
raw measures 2
Calibration Coefficients
hum_raw
Humidity
adc_H
dig_H1
dig_H2
dig_H3
dig_H4
dig_H5
dig_H6
dig_H7
t_fine
var_H
float64 var1;
float64 var2;
float64 var3;
float64 var4;
float64 temp_comp;
float64 calc_hum;
temp_comp=(t_fine /5120) ;
var1 = adc_H - ((dig_H1 * 16.0) + ((dig_H3 / 2.0) * temp_comp));
var2 = var1 * ((dig_H2 / 262144.0) * (1.0 + ((dig_H4 / 16384.0) * temp_comp) + ((dig_H5 / 1048576.0)
* temp_comp * temp_comp)));
var3 = dig_H6 / 16384.0;
var4 = dig_H7 / 2097152.0;
calc_hum = var2 + ((var3 + (var4 * temp_comp)) * var2 * var2);
if (calc_hum > 100)
{
calc_hum = 100;
}
else if (calc_hum < 0)
{
calc_hum = 0;
}
var_H=calc_hum;

python

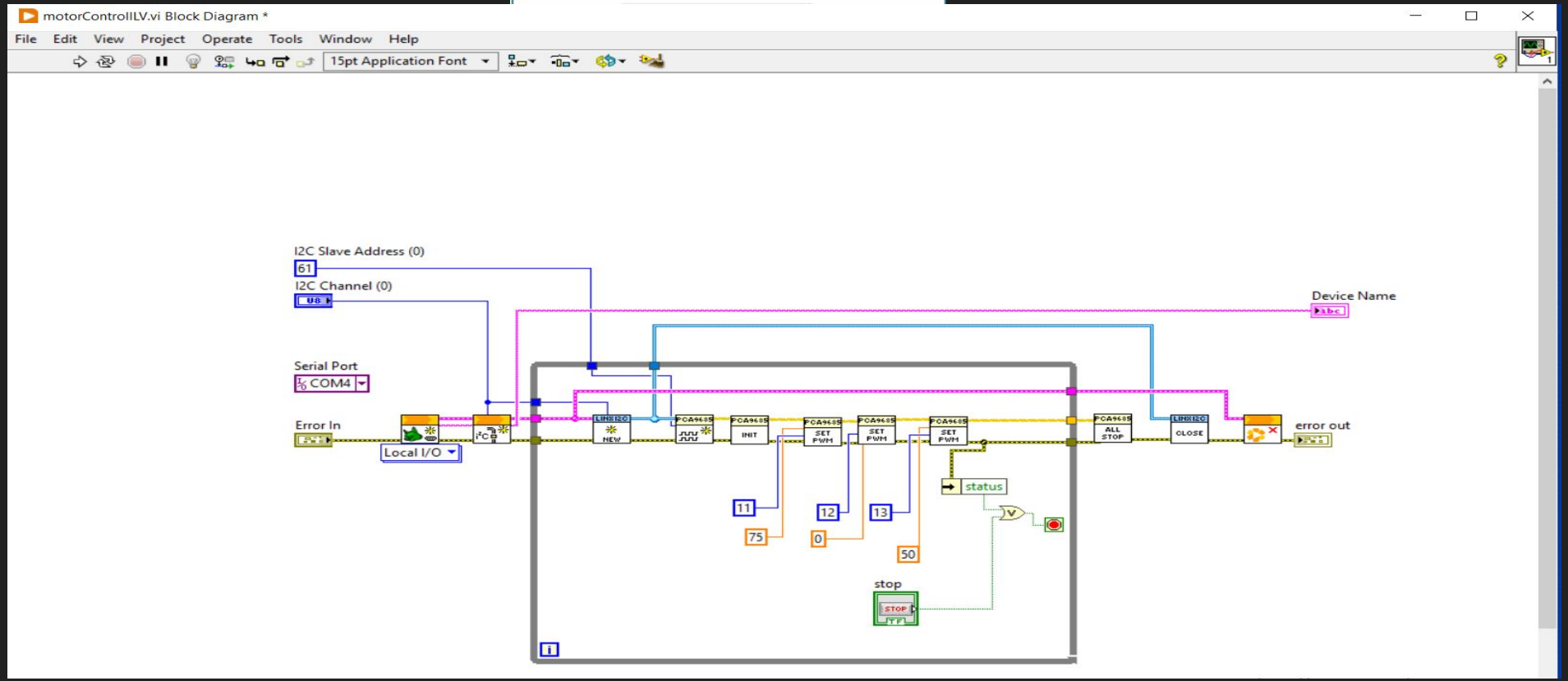

test cli.vi Block Diagram on onlab2.lvproj/raspberrypi
File Edit View Project Operate Tools Window Help
15pt Application Font
ssh pi@raspberrypi python3 bme680_jo_david.py
return code
standard error
Error In
Local I/O
Error Out
standard output
after substring
?
C,
hPa,
value
value 2
value 3

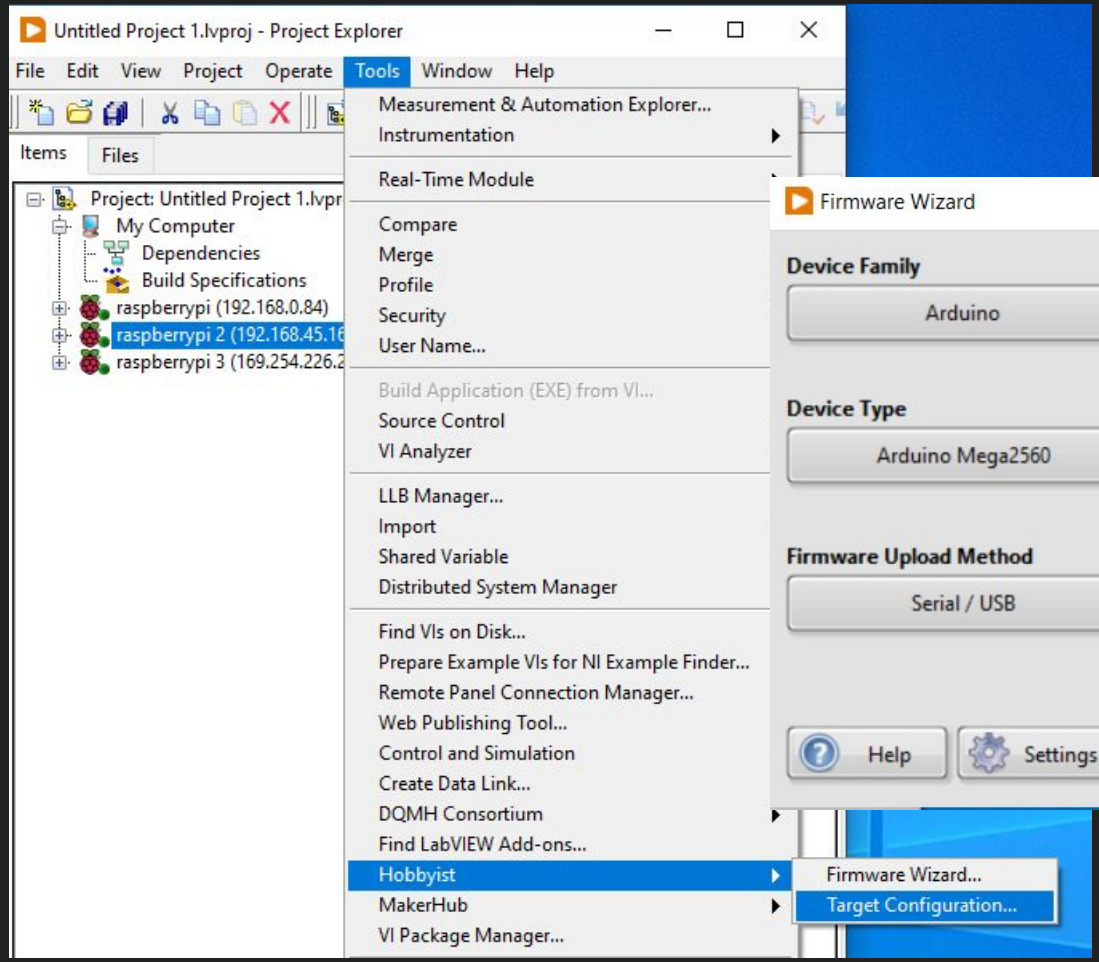
vezérlők

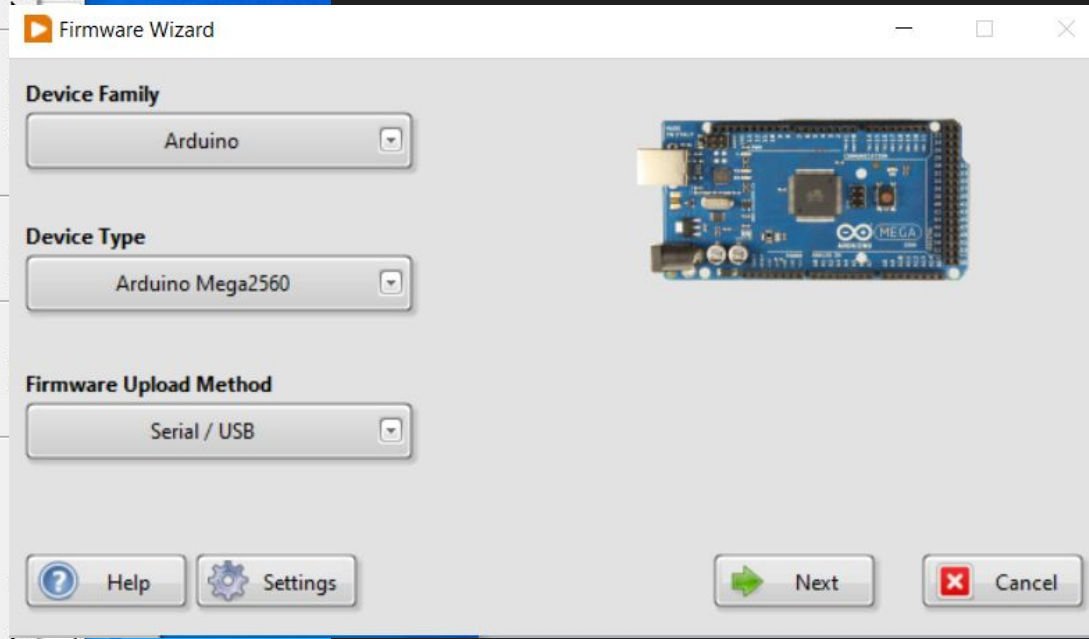
- DC Stepper Motor Hat
- PCA9685
- 2 db TB6612FNG



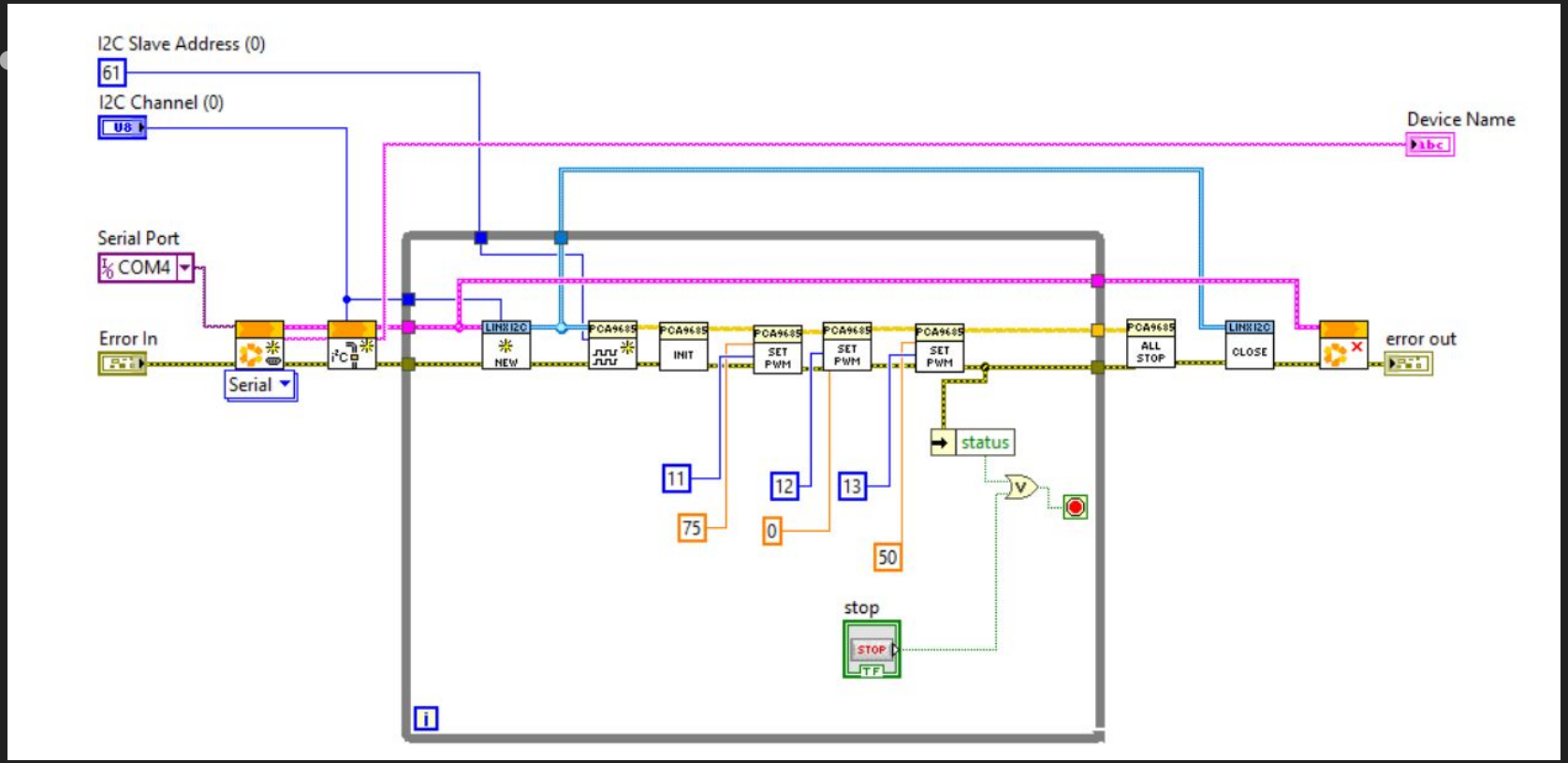
vezérlők


motorControlILV.vi Block Diagram *
File Edit View Project Operate Tools Window Help
15pt Application Font
I2C Slave Address (0)
61
I2C Channel (0)
U8
Device Name
Serial Port
COM4
Error In
Local I/O
LINX I2C NEW
PCA9685 INIT
PCA9685 SET PWM
PCA9685 ALL STOP
LINX I2C CLOSE
error out
11
75
12
0
13
50
status
stop
STOP
TF
i


Untitled Project 1.lvproj - Project Explorer
File Edit View Project Operate Tools Window Help
Items Files
Project: Untitled Project 1.lvpr
My Computer
Dependencies
Build Specifications
raspberrypi (192.168.0.84)
raspberrypi 2 (192.168.45.16
raspberrypi 3 (169.254.226.2
Measurement & Automation Explorer...
Instrumentation
Real-Time Module
Compare
Merge
Profile
Security
User Name...
Build Application (EXE) from VI...
Source Control
VI Analyzer
LLB Manager...
Import
Shared Variable
Distributed System Manager
Find VIs on Disk...
Prepare Example VIs for NI Example Finder...
Remote Panel Connection Manager...
Web Publishing Tool...
Control and Simulation
Create Data Link...
DQMH Consortium
Find LabVIEW Add-ons...
Hobbyist
MakerHub
VI Package Manager...
Firmware Wizard...
Target Configuration...


Firmware Wizard
Device Family
Arduino
Device Type
Arduino Mega2560
Firmware Upload Method
Serial / USB
Help
Settings
Next
Cancel

Arduinos projektek



Köszönöm a figyelmet és jó szórakozást otthon!