

# **Outer Tracker Upgrade Group Meeting**

**4th June 2025**

**IP2I**

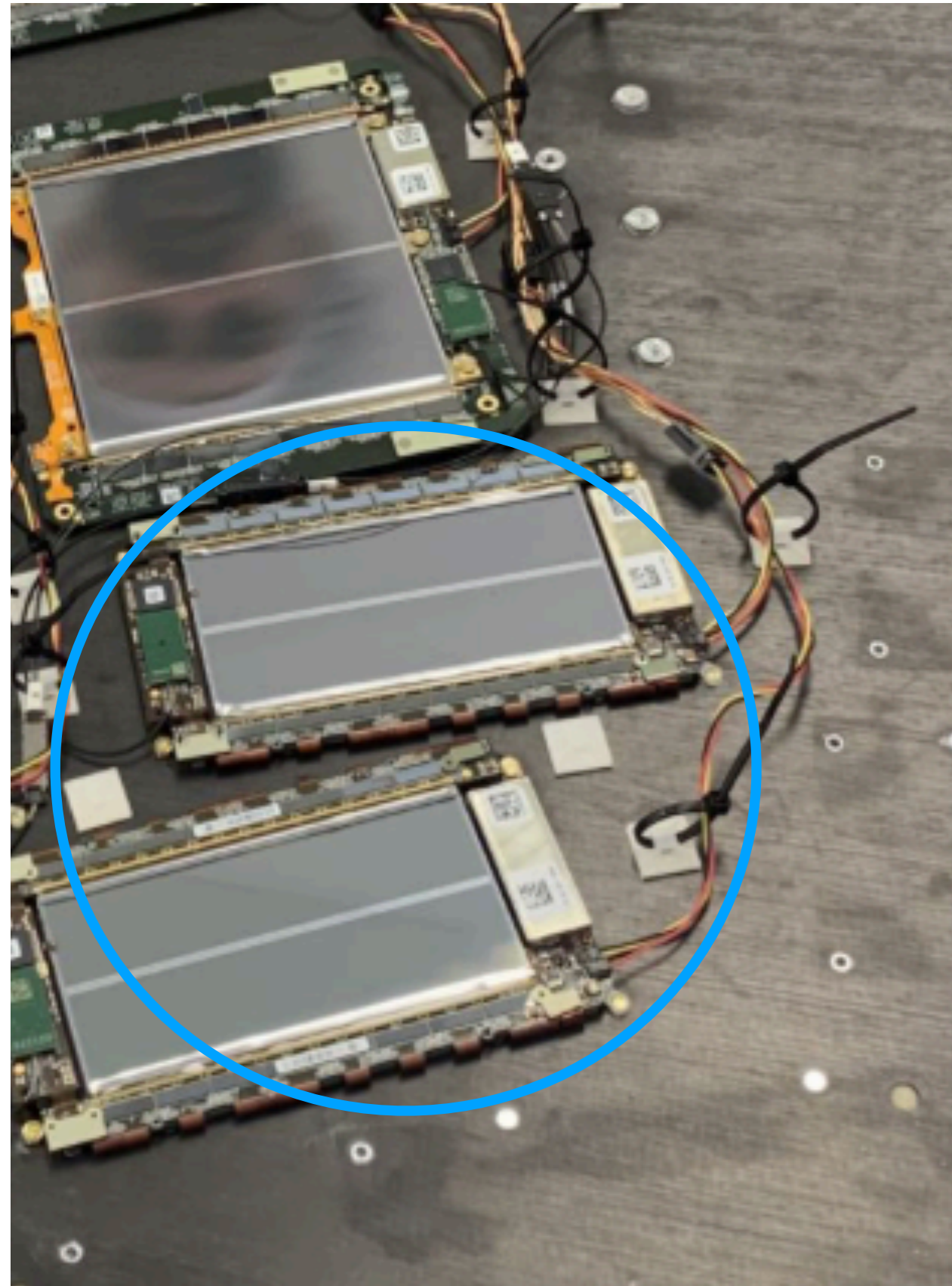
**Arnab Purohit**

# News

1. Expecting to receive new modules (1 2S and 1 PS) in summer 2025.
2. Tracker week 14th July to 18th July.
  1. Enzo (PhD student) will present studies done at our lab.
3. Tomorrow in the “OT Subsystems Integration Technical meeting” all the sites are requested to present info related to Ph2\_ACF (DAQ) uses.

# News

1. Excited to test first PS module and a working 2S module at our test bench.



# Ongoing work & To do

- Prepared some slides for tomorrow. (Discuss today)
- Installed latest version of Potato.
- The latest version of Ph2\_ACF (v6.11) and Gipht(v4.96) is installed.
- Test two modules at the two test benches without an independent set up.

# Ongoing work & To do

1. Prepare Nodered dashboard for CAEN control.
  1. Already running. Waiting for Gustave to prepare the validation step.
2. Prepared a list of items need to be bought for the second test bench.  
(Houmani)
  1. Shown last week.
3. Validating the Nodered dashboard (Gustave). Shared with him the instructions to run nodered locally.

# Ongoing work & To do

- Ph2\_ACF (v6.11) and Gipht(v4.96) is installed

DB Status

Online

☐ Expert

Init and Check DB

Update Test Condition

Use DB to check Monitor

☒

Init DB on Startup

☐

2 Factor Authentication

☒

DB

☐ Production D

☒ Test DB

Measurement

Results

Configuration

Monitor

Expert Tab

DB Status

Online

☐ Expert Monitor

Init and Check DB

Update Test Condition

Use DB to check Monitor

☒

Init DB on Startup

☐

2 Factor Authentication

☒

DB

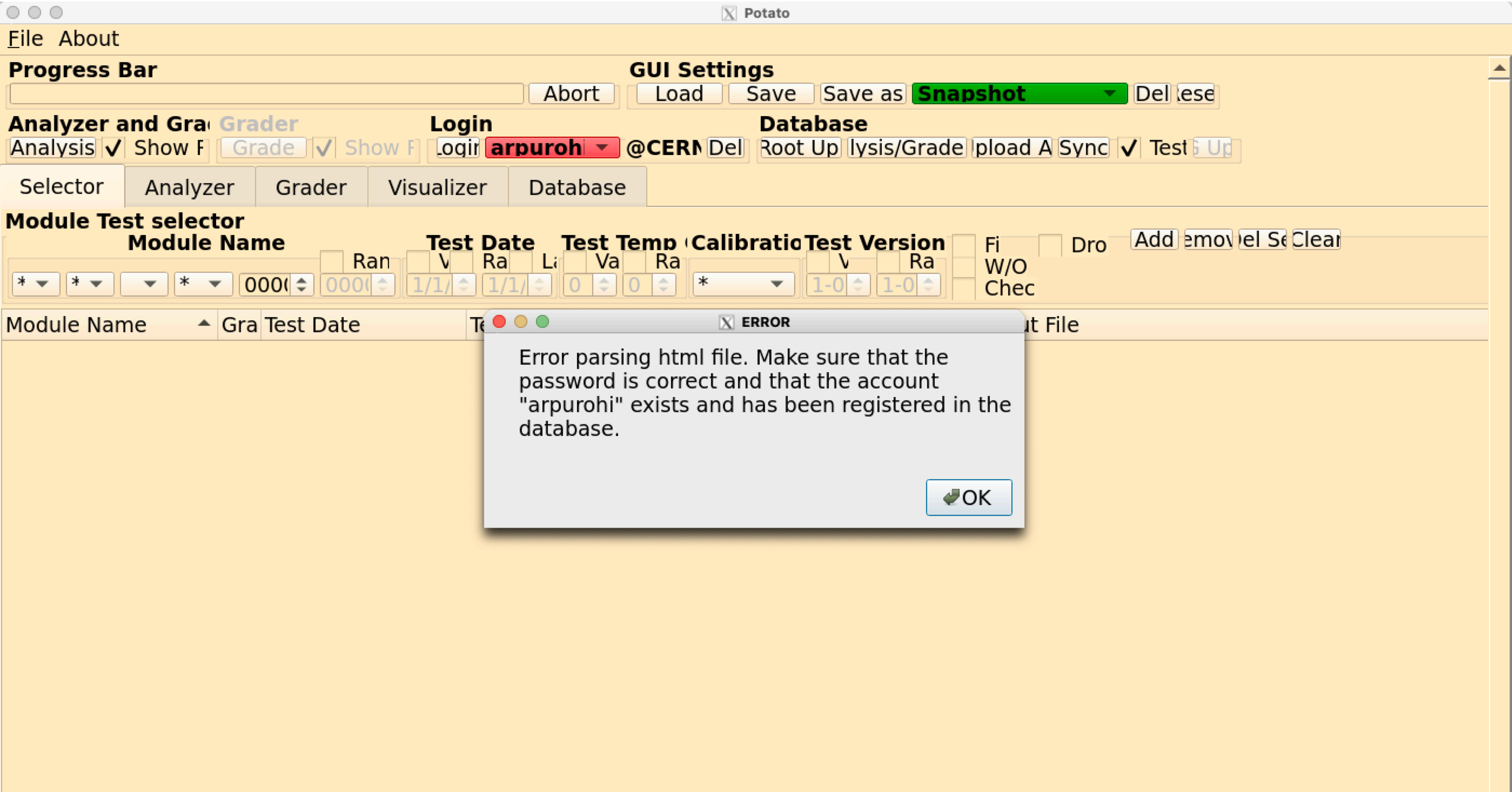
☒ Production D

☐ Test DB



# Ongoing work & To do

- Installed latest version of Potato



# Ongoing work & To do

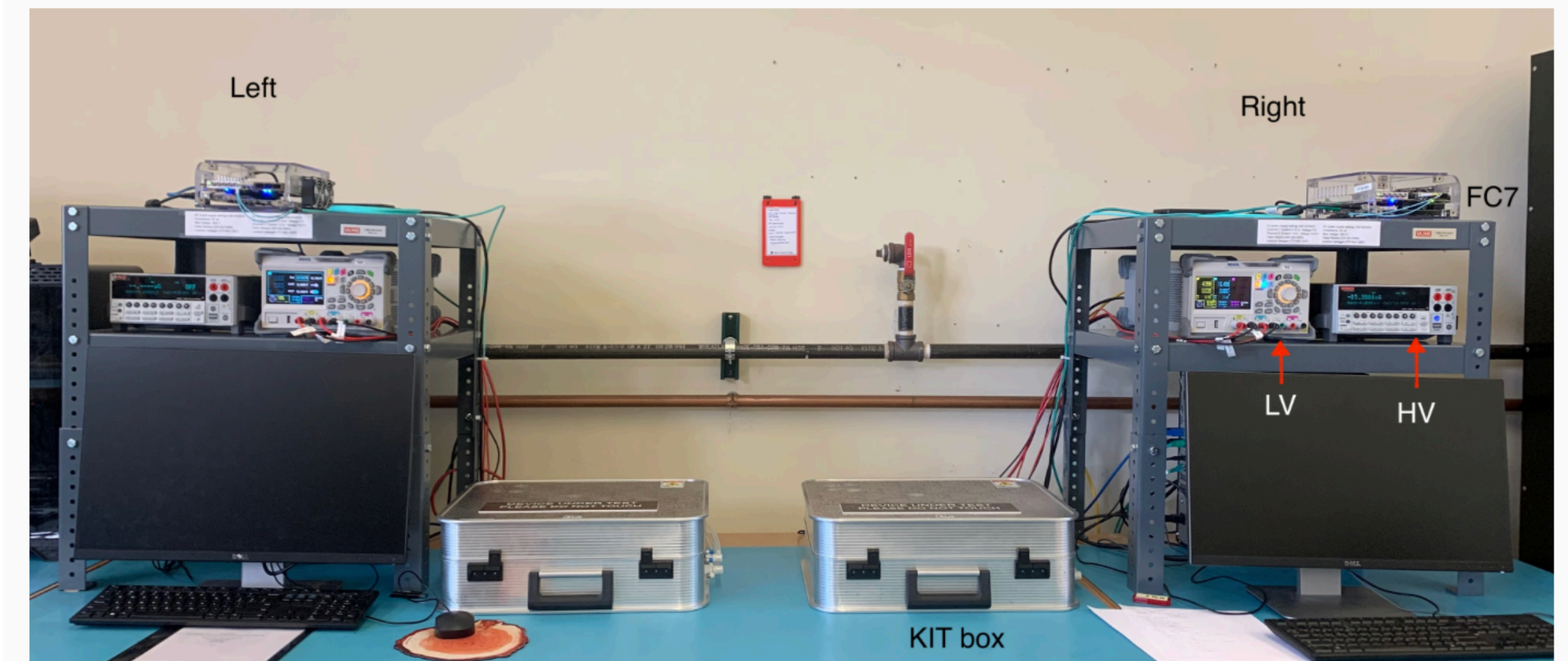
1. FNAL uses two independent setup.
2. UCLouvain has a single box setup.

## FNAL KIT boxes and gipht setups

### KIT boxes

The reference description for the KIT boxes can be found [here](#).

At FNAL we have two boxes, the right and the left one labeled as seen from an operator looking at them, as shown in the picture below:





# Ongoing work & To do

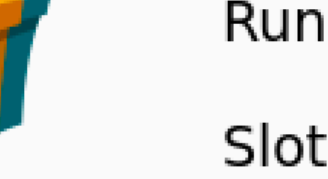
Measurement

Results

Configuration

Monitor

Expert Tab



Operator Location Station

DB Status Online

Run: 46

Slots: 1 Configure Slots

Add

Arbab Parohit

AnyLocationName

Awesome Station

2S

PS

☒ Quick Test
 ☐ Full Test

☒ IV
 

2SquickTest

PSquickTest

Slot 0

☒ 2S
 

Module II

Information

cap.

leton

0.00V

0.00nA

0.00V

0.00A

0.00%

0.00

No.	Type	Status	Stop
9	CheckDB	Done	Stop
10	GetTestConditionsFromDB	Done	Stop
11	SetVoltages	Running: Set voltages to channels Ro...	Stop
12	CheckDB	Done	Stop
13	GetTestConditionsFromDB	Done	Stop

Task

GetTestConditionsFromDB (100%)

STOP Task


Run

GetTestConditionsFromDB (0%)

STOP

# Ongoing work & To do

MeasurementResultsConfigurationMonitorExpert Tab



Operator Location Station DB Status Online

Run: 46

Slots 

2

 Configure Slots

Add

Arbab Purohit

AnyLocationName

Awesome Station

2S

PS

☒ Quick Test

☐ Full Test

☒ IV

2SquickTest

PSquickTest

Slot 0

☒

2S

Module ID

Info

Encap.

Skeleton

0.00V

0.00nA

0.00V

0.00A

0.00%

0.0

Slot 1

☐

2S

Module ID

Info

Encap.

Skeleton

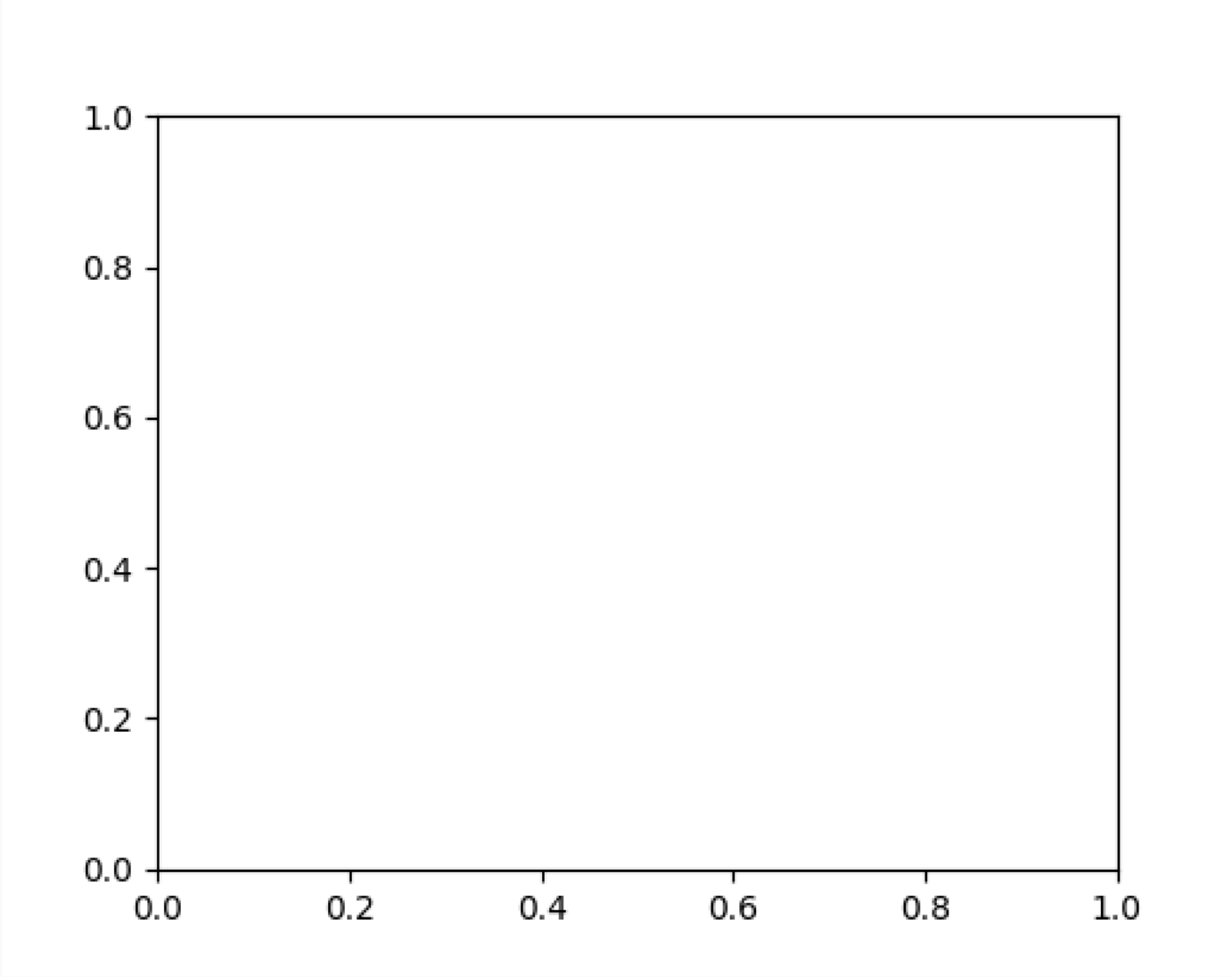
HV\_V

HV\_I

LV\_V

LV\_I

F



No.	Type	Status	Stop
9	CheckDB	Done	Stop
10	GetTestConditionsFromDB	Done	Stop
11	SetVoltages	Running: Set voltages to channels Ro...	Stop
12	CheckDB	Done	Stop
13	GetTestConditionsFromDB	Done	Stop

Task

GetTestConditionsFromDB (100%)

STOP Task

Run

GetTestConditionsFromDB (0%)

STOP

# Ongoing work & To do


Measurement

Results

Configuration

Monitor

Expert Tab



Run: 46

Slots: 2

Add

Arnab

AnyLo

Aweso

Operator Location Station DB Status Online

1.0

0.8

0.6

0.4

0.2

0.0

0.0

0.2

0.4

0.6

0.8

1.0

LV Power supply

HV Power supply

RH / T Arduino

OG

Slot 0

RohdeSchv

HV-0

TempHumid

OG 0

Slot 1

-

-

-

OG 1

Save

Cancel

PS

☒ Quick Test

☐ Full Test

0.00V 0.00nA 0.00V 0.00A 0.00% 0.0

Skeleton

HV\_V HV\_I LV\_V LV\_I F

Stop

Stop

Stop

Stop

Stop

Stop

START

STOP Task

STOP

Task

GetTestConditionsFromDB (100%)

Run

GetTestConditionsFromDB (0%)

# Ongoing work & To do


Measurement

Results

Configuration

Monitor

Expert Tab



Run: 46

Slots: 2

Add

Arnab

AnyLo

Aweso

Operator

Location

Station

DB Status Online

1.0

0.8

0.6

0.4

0.2

0.0

0.0

0.2

0.4

0.6

0.8

1.0

Configure Slots

LV Power supply HV Power supply RH / T Arduino OG

Slot 0

RohdeSchwarz-1

TempHumid

OG 0

Slot 1

OG 1

Save

Cancel

PS

Quick Test

Full Test

0.00V 0.00nA 0.00V 0.00A 0.00% 0.0

Skeleton HV\_V HV\_I LV\_V LV\_I F

Stop

Stop

Stop

Stop

Stop

START

STOP Task

STOP

Task

GetTestConditionsFromDB (100%)

Run

GetTestConditionsFromDB (0%)



# Ongoing work & To do


Measurement

Results

Configuration

Monitor

Expert Tab



Run: 46

Slots: 2

Add

Arnab

AnyLo

Aweso

Operator Location Station DB Status Online

1.0

0.8

0.6

0.4

0.2

0.0

0.0

0.2

0.4

0.6

0.8

1.0

LV Power supply

HV Power supply

RH / T

Arduino

OG

Slot 0

RohdeSchv

HV-0

Keithley-FRONT

OG 0

Slot 1

-

-

-

OG 1

Save

Cancel

PS

☒ Quick Tes

☐ Full Test

0.00V 0.00nA 0.00V 0.00A 0.00% 0.0

Skeleton

HV\_V

HV\_I

LV\_V

LV\_I

Stop

Stop

Stop

Stop

Stop

START

STOP Task

STOP

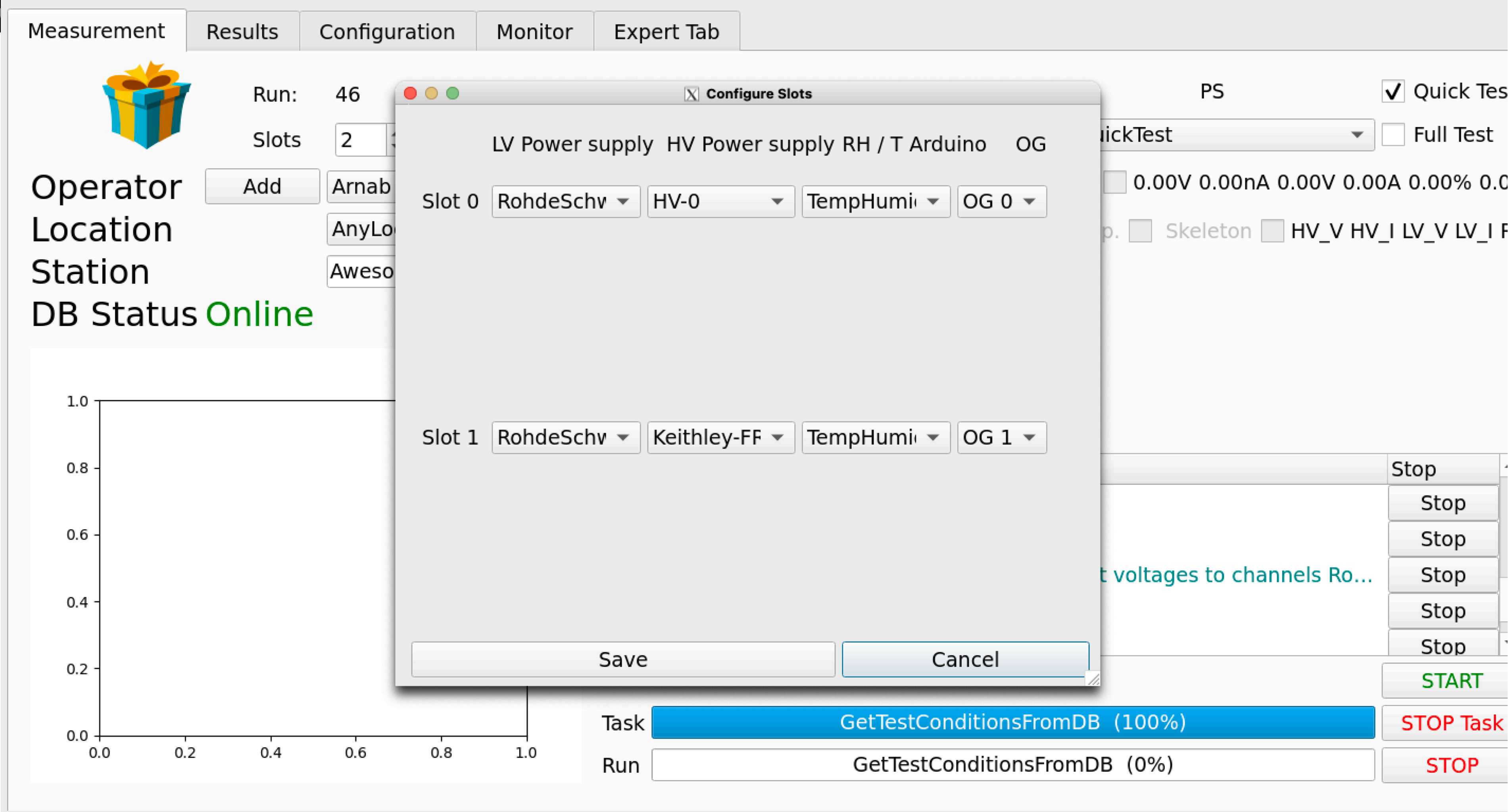
Task

Run

GetTestConditionsFromDB (100%)


GetTestConditionsFromDB (0%)

# Ongoing work & To do



# Ongoing work & To do

## 1. New Gipht



1

32

Project

Pinned

Manage

Plan

Code

Merge requests1

Repository

Branches

Commits

Tags

cms\_tk\_ph2 / Gipht / Commits / 520bd9b1

Showing 2 changed files with 2 additions and 2 deletions

Hide whitespace changes

Inline

Side-by-side

potatoconverters @ cf7097d1

Compare f9d904d4...cf7097d1

1	- Subproject commit f9d904d45cdef110f113ed18d34f6d32aa35d576
1	+ Subproject commit cf7097d1d9875355eba43f0e7605e128ab2a7906

src/GuiController.py

+1 -1

View file @ 520bd9b1

```
@@ -1109,7 +1109,7 @@ class GuiController(QObject):
1109 1109         runInfo["Location"] = self.window.ui.locationComboBox.currentText()
1110 1110         runInfo["Station_Name"] = self.window.ui.stationNameLineEdit.text()
1111 1111
1112 -         runInfo["Result_Folder"] = self.configurationList["Result_Folder"] + str ( int(
1112 +         runInfo["Result_Folder"] = self.configurationList["Result_Folder"] + str ( int(
self.configurationList["LocalRunNumber"] ) ) + "/"
self.configurationList["LocalRunNumber"] ) ) + "_" + slot.module.id + "/"
1113 1113         runInfo["LocalRunNumber"] = int( self.configurationList["LocalRunNumber"] )
1114 1114         runInfo["Date"] = str( datetime.now().strftime("%d-%m-%Y %H:%M:%S") )
1115 1115
... ..
```

# Ongoing work & To do

## 1. 2S Tests


Measurement

Results

Configuration

Monitor

Expert Tab



Run: 46

Slots: 2 

Configure Slots

Operator

Location

Station

DB Status Online

Add

Arnab Purohit

AnyLocationName

Awesome Station

Slot 0 ☒

Slot 1 ☐

No.

9

10

11

12

13

Task

Run

OTverifyBoardDataWord

OTalignStubPackage

alignment

patternChecker

testCICbypass

injectionDelayOptimization

measureOccupancy

injectionOccupancyScan

calibration

calibrationandkira

calibrationandpednoiseandkira

pednoise

calibrationandpednoise

adccalibrationandpednoise

calibrationexample

pscountertest

otlatency

exttriggerotlatency

alignLpGBTinputsForBypass

bert

eyeOpening

commonNoise2S

cbcpulseshape

2SquickTest

2SfullTest

physics2s

PS

☒ Quick Test

☐ Full Test

quickTest

0.00V 0.00nA 0.00V 0.00A 0.00% 0.0

cap. ☐ Skeleton ☐ HV\_V HV\_I LV\_V LV\_I F

Stop

Stop

Stop

Stop

Stop

START

DB (100%)

DB (0%)

STOP Task

STOP



# Ongoing work & To do

## 1. PS Tests

Graphical user Interface for PHase 2 Tracker objects - GIPHT v4.8


Measurement

Results

Configuration

Monitor

Expert Tab



Run: 46

Slots: 2

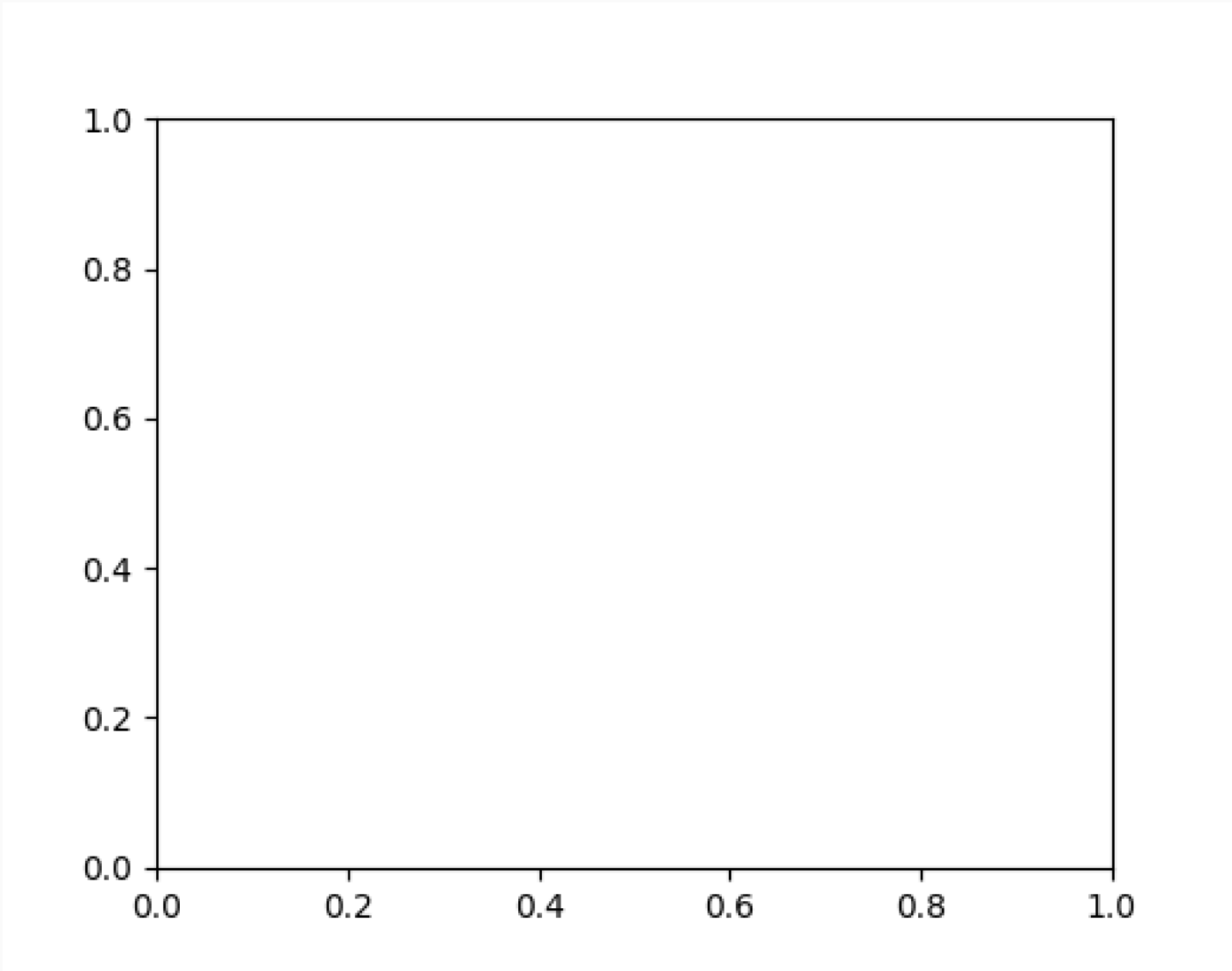
Configure Slots

Operator: Arnab Purohit

Location: AnyLocationName

Station: Awesome Station

DB Status: Online



No.	Type	Status
9	CheckDB	Done
10	GetTestConditionsFromDB	Done
11	SetVoltages	Running
12	CheckDB	Done
13	GetTestConditionsFromDB	Done

Task: GetTestConditionsFromDB

Run: GetTestConditionsFromDB

2S

IV: 2SquickTest

Slot 0: 2S

Slot 1: 2S

noiseOT

vtrxoff

vtrxLightYield

OTCICtoLpGBTecv

OTRegisterTester

OTalignLpGBTinputs

OTalignBoardDataWord

OTverifyBoardDataWord

OTalignStubPackage

alignment

patternChecker

testCICbypass

injectionDelayOptimization

measureOccupancy

injectionOccupancyScan

calibration

calibrationandkira

calibrationandpednoiseandkira

pednoise

calibrationandpednoise

adccalibrationandpednoise

calibrationexample

pscountertest

otlatency

exttriggerotlatency

alignLpGBTinputsForBypass

Quick Test

Full Test

0.00% 0.0

V\_V LV\_I F

op

Stop

Stop

Stop

Stop

Stop

START

TOP Task

STOP

# Ongoing work & To do

## 1. For 2S modules

Quick test

Step	duration per module (mm:ss)
Configuration	00:11
TuneLpGBTVref	00:01
OTVTRxLightYieldScan	00:01
OTLpGBTEyeOpeningTest	00:28
OTalignLpGBTinputs	00:04
OTalignBoardDataWord	00:00
OTverifyBoardDataWord	00:03
OTalignStubPackage	00:00
OTCICphaseAlignment	00:07
OTCICwordAlignment	00:00
OTverifyCICdataWord	00:09
PedestalEqualization	00:11
PedeNoise	00:07
Total time	01:22

Full test

Step	duration per module (mm:ss)
Configuration	00:07
TuneLpGBTVref	00:01
OTVTRxLightYieldScan	00:01
OTLpGBTEyeOpeningTest	00:29
OTalignLpGBTinputs	00:04
OTalignBoardDataWord	00:00
OTverifyBoardDataWord	00:04
OTalignStubPackage	00:00
OTCICphaseAlignment	00:06
OTCICwordAlignment	00:01
OTverifyCICdataWord	00:09
PedestalEqualization	00:11
PedeNoise	00:07
OTinjectionDelayOptimization	01:27
OTinjectionOccupancyScan	01:06
OTCMNoise	01:01
OTCICtoLpGBTecv	01:44
OTalignLpGBTinputsForBypass	00:40
OTChipToCICecv	01:51
OTBitErrorRateTest	03:17
OTRegisterTester	01:36
Total time	14:02

# Ongoing work & To do

## 1. For PS modules

Quick test	
Step	duration per module (mm:ss)
Configuration	00:10
TuneLpGBTVref	00:05
OTVTRxLightYieldScan	00:01
OTLpGBTEyeOpeningTest	00:33
OTalignLpGBTinputs	00:06
OTalignBoardDataWord	00:00
OTverifyBoardDataWord	00:03
OTalignStubPackage	00:00
OTCICphaseAlignment	00:03
OTCICwordAlignment	00:00
OTverifyCICdataWord	00:15
OTverifyMPASSAdataWord	00:35
OTPSringOscillatorTest	00:01
PedestalEqualization	00:42
PedeNoise	00:14
Total time	02:48

Full test	
Step	duration per module (mm:ss)
Configuration	00:07
TuneLpGBTVref	00:01
OTPSADCCalibration	01:23
OTVTRxLightYieldScan	00:02
OTLpGBTEyeOpeningTest	00:35
OTalignLpGBTinputs	00:05
OTalignBoardDataWord	00:00
OTverifyBoardDataWord	00:04
OTalignStubPackage	00:00
OTCICphaseAlignment	00:02
OTCICwordAlignment	00:00
OTverifyCICdataWord	00:16
OTverifyMPASSAdataWord	00:34
OTPSringOscillatorTest	00:01
PedestalEqualizationPSFullScan	02:59
PedeNoisePSLowInjection	00:13
OTinjectionDelayOptimization	03:37
OTinjectionOccupancyScan	04:08
OTPScommonNoise	00:16
OTSSAtoMPAecv	07:06
OTSSAtoSSAecv	01:25
OTCICtoLpGBTecv	02:15
OTalignLpGBTinputsForBypass	00:36
OTChipToCICecv	01:55
OTBitErrorRateTest	01:56
OTRegisterTester	02:41
Total time	32:17



