

# Prototyping activities at IdeaSquare

Team Meeting 09.02.2024
























Dina Zimmermann





**What's ongoing/status**

# CERN Collaboration Projects

<input type="checkbox"/>	 14 EP-DT-DD Adjustable Height Table for ...	 	34.3 MB	11 months ago
<input type="checkbox"/>	 15 EP-UAT ATLAS Phase II-Upgrade MDT ...	 	3 MB	7 months ago
<input type="checkbox"/>	 16 ZULF-RD-NMR Parts	 	1.7 MB	7 months ago
<input type="checkbox"/>	 17 EP Silicon Detector Holder for implanti...	 	15.4 MB	7 months ago
<input type="checkbox"/>	 18 LHC VLead Tester Box	 	12.7 MB	6 months ago
<input type="checkbox"/>	 19 LHCb Calorimeter Light Guide	 	2.1 MB	3 months ago
<input type="checkbox"/>	 20 LHCb W-poly SPACAL Mock-up	 	1.8 MB	3 months ago
<input type="checkbox"/>	 21 Cable Protection Cap	 	14.1 MB	3 months ago
<input type="checkbox"/>	 22 Casing for Photodetachment of Anthy...	 	7.2 MB	3 months ago
<input type="checkbox"/>	 23 PCB Holder for Radiation Campaign in ...	 	1.9 MB	3 months ago
<input type="checkbox"/>	 24 AWAKE Lanex Scintillator Trimming	 	28 kB	7 days ago
<input type="checkbox"/>	 25 Table-XY as Tool in Robotics Section	 	66 kB	6 days ago
<input type="checkbox"/>	 26 ATLAS 3D Printed Mock-Up (0.01 scale)	 	6.1 MB	16 hours ago

More than 13  
Collaboration Projects  
within CERN

With groups such as:

- ATLAS
- LHCb
- Bond Lab
- AWAKE
- CLEAR
- ZULF-RD-NMR

# Workshops and events

## **FPGA Programming using LabVIEW**

Held by Adriaan Rijllart

2 x 2h for CERN  
personnel

5 workshops the last  
year

50+ attendees

## **Arduino workshop**

Held by Alberto Perro

2h workshop for CERN  
Personnel

6 workshops the last  
year

60+ attendees

## **Prototyping at CERN event**

June and November

CERN Personell brings  
their prototypes and  
shares insights

30+ attendees

# Training for machine usage

## **3D printing training**

How to use the FDM 3D printers at IdeaSquare

1h training

Every month

47 trained since last year

## **Laser Cutter training**

How to use the Laser Cutter at IdeaSquare

1h training

Every month

45 trained since last year

# Prototyping during student programs

Prototyping under 10 out of 18 student programs last year

Variations of low and high fidelity prototypes































Idea<sup>s</sup>



**R&D&I  
projects**

# How 2024 will look like

# Future of CERN Collaboration Projects

<input type="checkbox"/>	 14 EP-DT-DD Adjustable Height Table for ...	 	34.3 MB	11 months ago
<input type="checkbox"/>	 15 EP-UAT ATLAS Phase II-Upgrade MDT ...	 	3 MB	7 months ago
<input type="checkbox"/>	 16 ZULF-RD-NMR Parts	 	1.7 MB	7 months ago
<input type="checkbox"/>	 17 EP Silicon Detector Holder for implanti...	 	15.4 MB	7 months ago
<input type="checkbox"/>	 18 LHC VLead Tester Box	 	12.7 MB	6 months ago
<input type="checkbox"/>	 19 LHCb Calorimeter Light Guide	 	2.1 MB	3 months ago
<input type="checkbox"/>	 20 LHCb W-poly SPACAL Mock-up	 	1.8 MB	3 months ago
<input type="checkbox"/>	 21 Cable Protection Cap	 	14.1 MB	3 months ago
<input type="checkbox"/>	 22 Casing for Photodetachment of Anthy...	 	7.2 MB	3 months ago
<input type="checkbox"/>	 23 PCB Holder for Radiation Campaign in ...	 	1.9 MB	3 months ago
<input type="checkbox"/>	 24 AWAKE Lanex Scintillator Trimming	 	28 kB	7 days ago
<input type="checkbox"/>	 25 Table-XY as Tool in Robotics Section	 	66 kB	6 days ago
<input type="checkbox"/>	 26 ATLAS 3D Printed Mock-Up (0.01 scale)	 	6.1 MB	16 hours ago

Continue as before

Has not been too time demanding - but could be a problem in the future if too many wants to use IdeaSquare





# Future workshops and events

## **Minipix Detector workshop**

Held by Pinelopi Christodoulou

Something Markus started  
before he left

We got a proposal of a  
workshop from Pinelopi

## **Informal talks with Robert Cailliau**

Do a test run by the next two  
weeks – starting with the  
LiveCode talk



# Future of training for machine usage

## **Thoughts**

Training on the Water Jet

Training on the Resin printers (rare)

Possibility: CAD course for beginners

# Prototyping during student programs

Would like to move into higher fidelity - test with TeSi program in April

Teaching students for to use the machines and make them explore the workshops more























Develop I2P Prototyping





**How 2025 will look like**

# Future of CERN Collaboration Projects

<input type="checkbox"/>	 14 EP-DT-DD Adjustable Height Table for ...	 	34.3 MB	11 months ago
<input type="checkbox"/>	 15 EP-UAT ATLAS Phase II-Upgrade MDT ...	 	3 MB	7 months ago
<input type="checkbox"/>	 16 ZULF-RD-NMR Parts	 	1.7 MB	7 months ago
<input type="checkbox"/>	 17 EP Silicon Detector Holder for implanti...	 	15.4 MB	7 months ago
<input type="checkbox"/>	 18 LHC VLead Tester Box	 	12.7 MB	6 months ago
<input type="checkbox"/>	 19 LHCb Calorimeter Light Guide	 	2.1 MB	3 months ago
<input type="checkbox"/>	 20 LHCb W-poly SPACAL Mock-up	 	1.8 MB	3 months ago
<input type="checkbox"/>	 21 Cable Protection Cap	 	14.1 MB	3 months ago
<input type="checkbox"/>	 22 Casing for Photodetachment of Anthy...	 	7.2 MB	3 months ago
<input type="checkbox"/>	 23 PCB Holder for Radiation Campaign in ...	 	1.9 MB	3 months ago
<input type="checkbox"/>	 24 AWAKE Lanex Scintillator Trimming	 	28 kB	7 days ago
<input type="checkbox"/>	 25 Table-XY as Tool in Robotics Section	 	66 kB	6 days ago
<input type="checkbox"/>	 26 ATLAS 3D Printed Mock-Up (0.01 scale)	 	6.1 MB	16 hours ago

Still continue in 2025  
(could discuss this)

# Future workshops and events

## **Minipix Detector workshop**

Held by Pinelopi Christodoulou

Something Markus started before he left

We got a proposal of a workshop from Pinelopi

## **Informal talks with Robert Cailliau**

Do a test run by the next two weeks – starting with the LiveCode talk

## **FPGA Programming using LabVIEW**

Held by Adriaan Rijllart

2 x 2h for CERN personnel

5 workshops the last year

50+ attendees

## **Arduino workshop**

Held by Alberto Perro

2h workshop for CERN Personnel

6 workshops the last year

60+ attendees

## **Prototyping at CERN event**

June and November

CERN Personnel brings their prototypes and shares insights

30+ attendees

# Future of training for machine usage

## **3D printing training**

How to use the FDM 3D printers at IdeaSquare

1h training

Every month

47 trained since last year

## **Laser Cutter training**

How to use the Laser Cutter at IdeaSquare

1h training

Every month

45 trained since last year

## **Water Jet Training**

How to use the WAZER

1h training

Every second month

## **Resin printer training**

How to use the FormLabs Form 3

1h training

Every third month

## **CAD course**

Basic introduction to CAD modelling for CERN Personell

Could be extended to students

# Prototyping during student programs

Fully developed I2P Prototyping

Training of machine usage for students







# Things to learn from/improve



# Improvements



- More time on student prototyping sessions and be more present in student projects
- Improve physical workshops more (inventory, VR headset etc.)
- Maintenance of 3D printers
  
- Update print farm by buying:
  - PRUSA XL
  - Prusa MK3s
  - Get rid of Creality Printer
  - Possibly dismantle the German RepRap
  - Connect the printers to the WiFi



# Improvements



- Stronger connection with prototypers and student programs!
- Update Electro Shop by:
  - Getting rid of Umuts ols computers
  - Making a new system for inventory
  - Cleaning out cupboards
- Update the Machine Shop by:
  - Doing an inventory
  - Updating missing parts and replace old equipment (ex. old saws)



# Suggestions

# Homemade photobooth in the bus



Possible questions:

- What is your opinion on IdeaSquare?
- What will you bring with you back from IdeaSquare to your hometown?



# Homemade photobooth in the bus



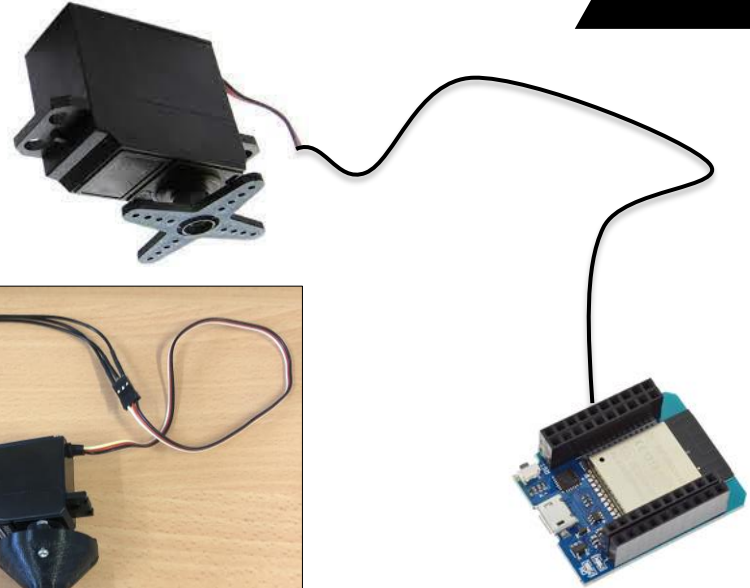
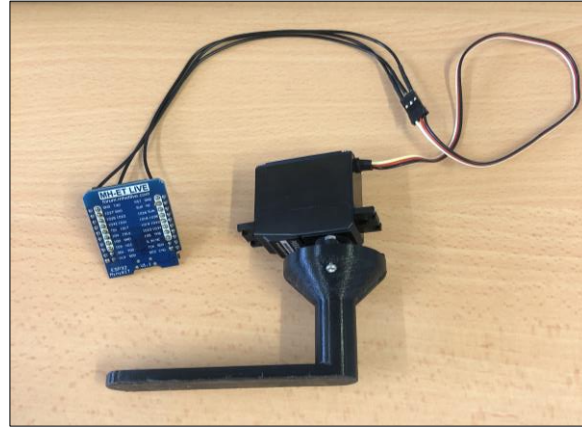
## Using

- Raspberry Pi
- Screen
- Button
- Camera
- SD-card

## Purpose:

- Gather real-time impressions from students on video
- Can be used in comms and for the 10 year anniversary/ATTRACT event
- A way to increase personal, technical knowledge for me

# Side-project



ESP 32 MH-ET LIVE