

# CERN Ideasquare

## INTRODUCTION



# IDEASQUARE IN BRIEF

“Ideasquare is a **pilot project** that brings together physicists, engineers, industrial partners, early-stage researchers and cross-disciplinary teams of students to **work together** on detector upgrade R&D technologies. The purpose is to **co-develop new technologies for research purposes**, and at the same time, create a fruitful environment for socially and globally relevant **new product ideas and innovation.**”

# IDEASQUARE IS

- Project with a dedicated building, hosting:
  - Detector upgrade R&D projects
  - Multidisciplinary master level student programs
  - Innovation events, workshops, hackathons
- ...to prototype, test and iterate new forms of collaboration and co-creation in the areas of Research, Education and Technology - **RET**





**EDUSAFE**

## **EXAMPLE: EU-FUNDED DETECTOR UPGRADE R&D PROJECT**

- EDUSAFE is a 4-year Marie Curie ITN project
- Training for 10 Early Stage and 2 Experienced Researchers
- Focuses on research into the use of Virtual Reality (VR) and Augmented Reality (AR) during planned and emergency maintenance in extreme environments
- The result will be an integrated wearable VR/AR system (+control system) which can be implemented and tested as a prototype, using LHC at CERN as a test and demonstration platform

**Alarms**

Panic Button Green

Dose Rate Green

Fall Detect Green

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**Measurements**

Barometric Pressure Green

Battery Level Green

Body Temperature Green

CO<sub>2</sub> Green

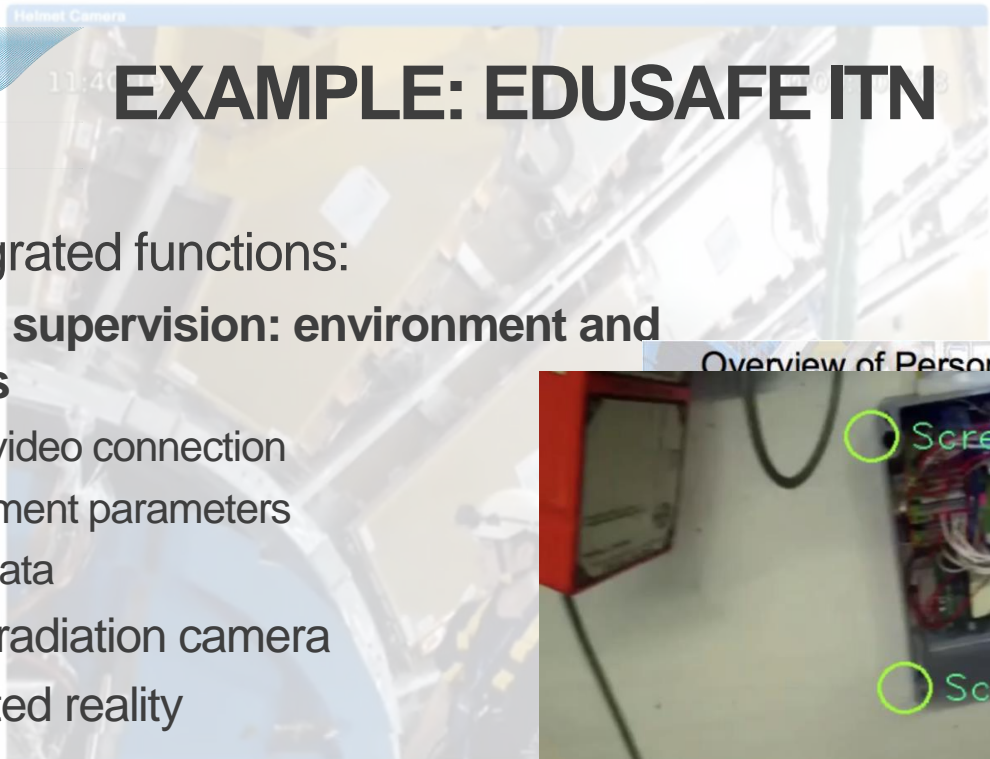
Dose Accum Green

Dose Rate Green

Humidity Green

Cu Green

Temperature Green



# EXAMPLE: EDUSAFE ITN

## EDUSAFE

• 3 main integrated functions:

• **Workers supervision: environment and activities**

- audio / video connection
- environment parameters
- health data
- Gamma radiation camera
- Augmented reality

(O. Beltramello, 2016)

**General info**

Server Status Green

Audio Status Green

DAQ Status Green

DB Connec Status Green

DB Update Status Green

Start Time 21 Feb 2013 09:32

Duration 2 h 7 m

**Dosimeter**

0.00 µSv/h

0.00 µSv/h



Overview of Personnel Safety System





Challenge  
Based  
Innovation

## EXAMPLE: MASTER-LEVEL STUDENT COURSE

- Challenge Based Innovation (CBI) is 4-6 month MSc-level specialization course for product and service development, run by participating universities from (currently) 10 countries around the world
- Five runs completed, 22 proof-of-concept prototypes produced
- In the course, multidisciplinary student teams learn how to apply Design Thinking – process (PBL) for new product/service development; CERN researchers act as technological coaches in the process
- “Work extremely hard, learn and have fun!”
- “Fail fast and often to succeed sooner”

# EXAMPLE: STUDENT PROJECT PROTOTYPE





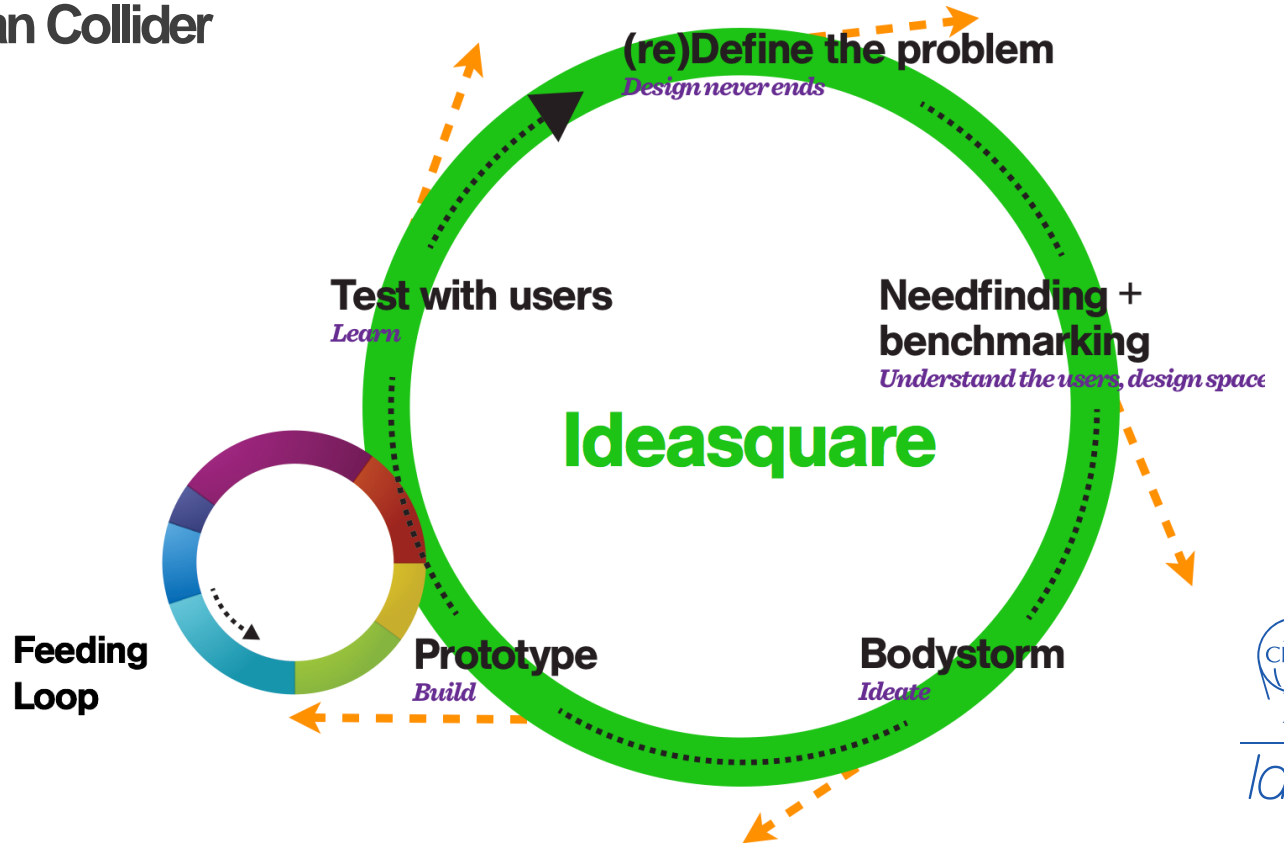
## EXAMPLE: HACKATHON

- Organised by THE Port Association, hosted by CERN Ideasquare and with partners from other non-governmental organisations, a three-day problem solving workshop hackathon with the theme “Science for Humanitarian Purposes”
- Example prototypes produced included: open-source cosmic ray detector, an assistive electronics suit to help mine detection dogs, an inflatable fridge for vaccines, a terrain-mapping tool for refugee camps, etc.



# IDEASQUARE

The Small Human Collider



# IDEASQUARE (EXPECTED) OUTPUT

- Innovation output measures are in development with in-situ research
- Communication, sharing ideas, spaces and resources improved in and between advanced technology development projects
- The counter-intuitive, controlled addition of variation, diversity, connections, ideas that are realised as prototypes to accelerate technology development
- Time span from discovery to application compacted
- Societal value of basic research more visible and tangible
- Education of future talent capable of working in basic research, commercial product & service development, or both
- Demonstrator for ATTRACT

*All you need is*

*..Love* + PHYSICS

*..Design*

*..Business*

*..and Engineering.*

Questions? Comments? Input?

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Let's have a cup of coffee and make interesting projects happen!



Idea<sup>s</sup>