

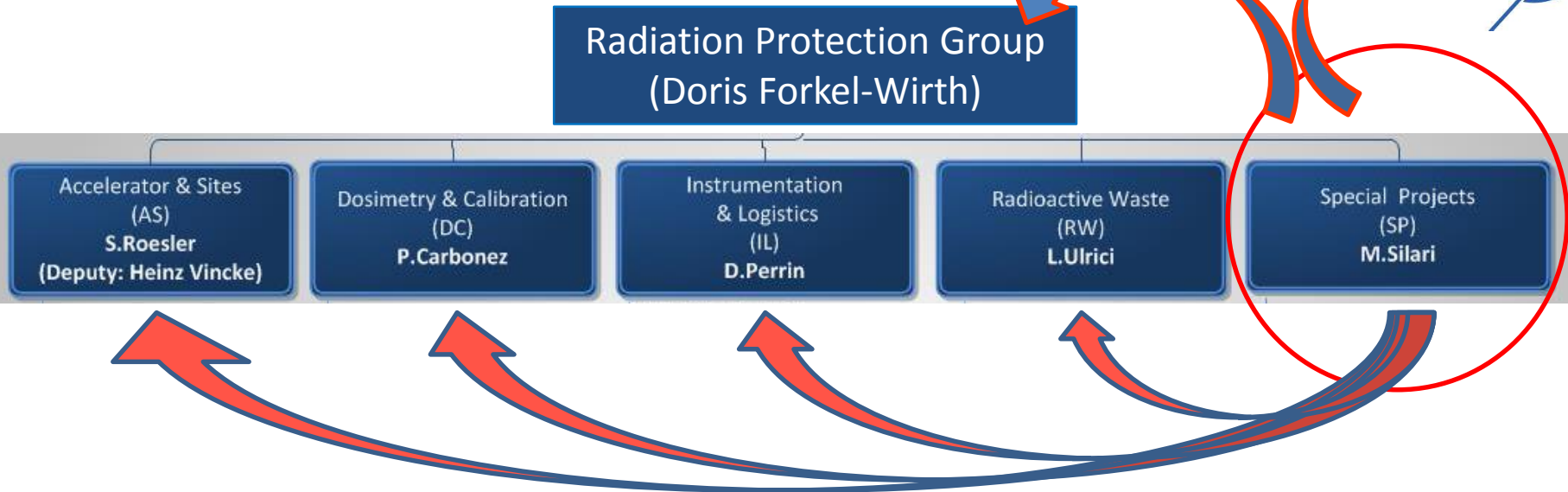
HEALTH

Detectors for health and safety

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IdeaSquare
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The RP-SP section (Special Projects) of HSE-RP group



The RP-SP section works in collaboration with all other sections of the RP group as well as on Group-wide and **CERN-wide projects**

E.g. (past): **SC project**

E.g. (present): **clearance of LEP sc RF modules for LS2**



Several projects involve detector R&D, 3 selected for IdeaSquare



CERN – AIST – Chiyoda collaboration agreement established

Distributed network of sensors – Potential for the future

Environmental monitoring of large areas

Personal dosimetry

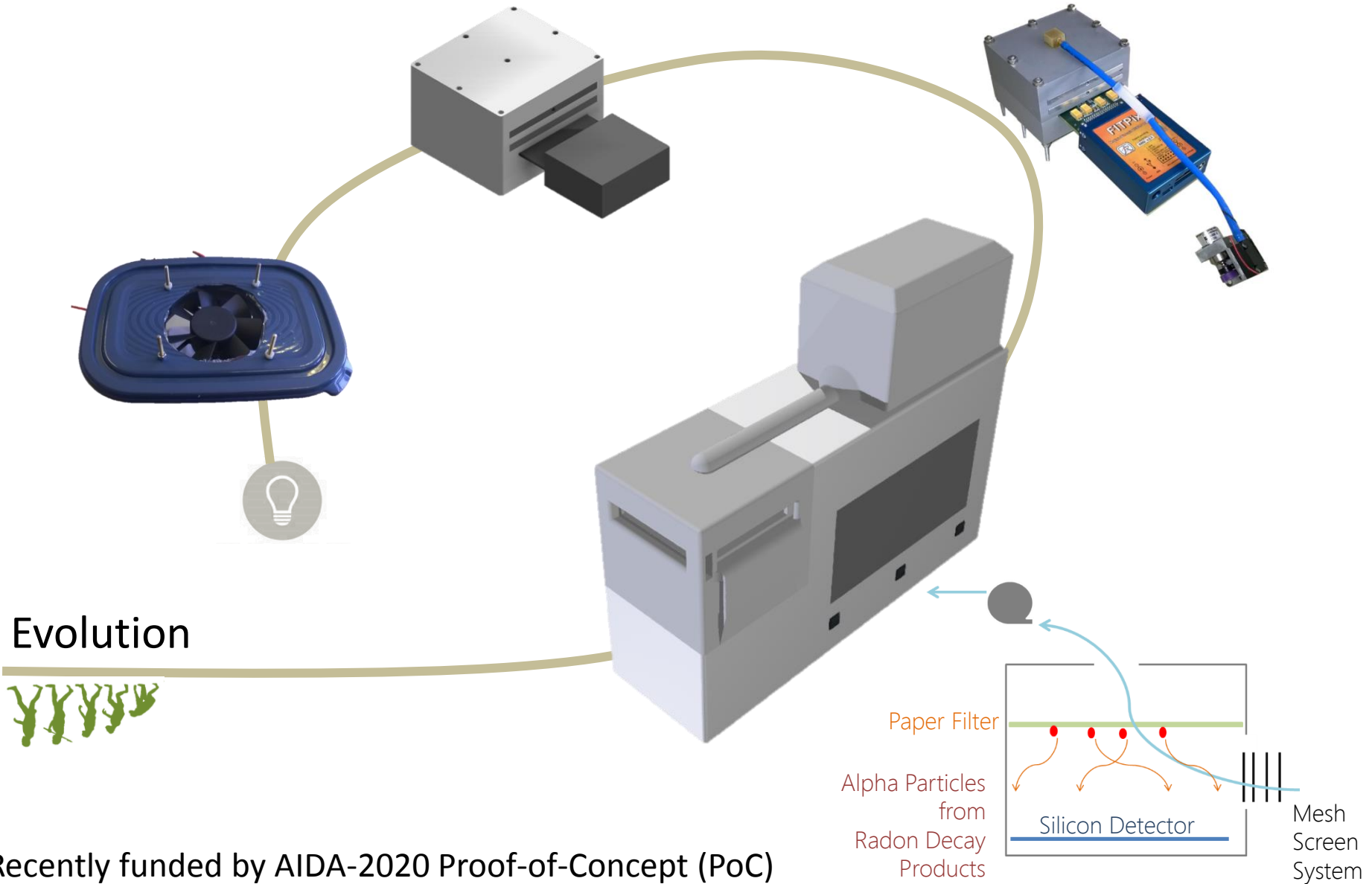
Automatic tracking of radioactive sources

Transport of radioactive materials

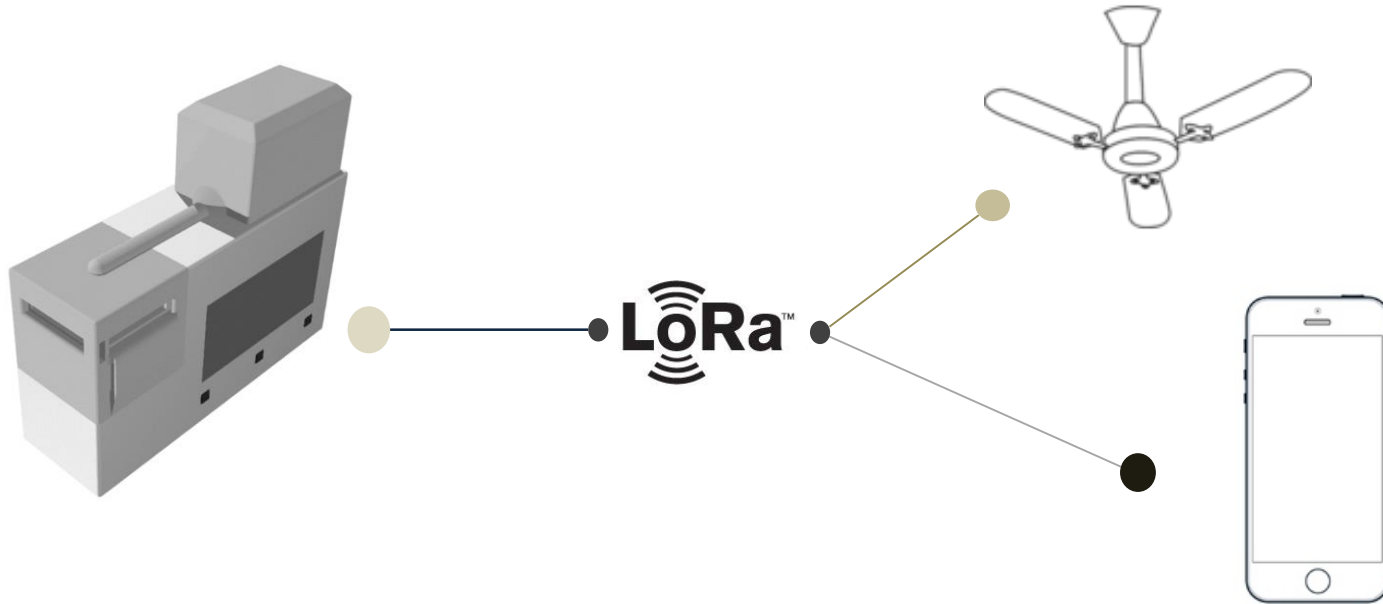
Direct integration in smartphones and other consumer electronics



RaDoM: Radon dose monitor



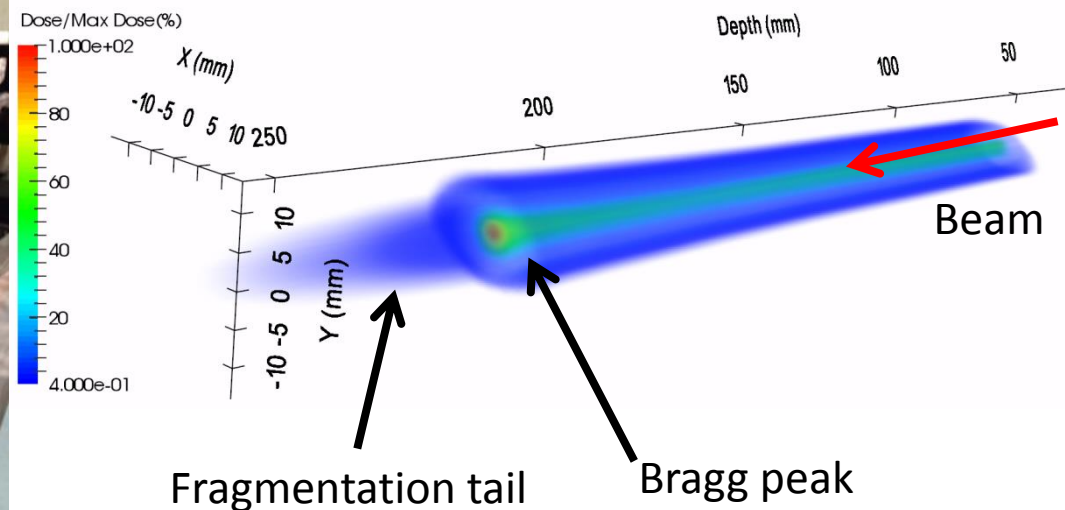
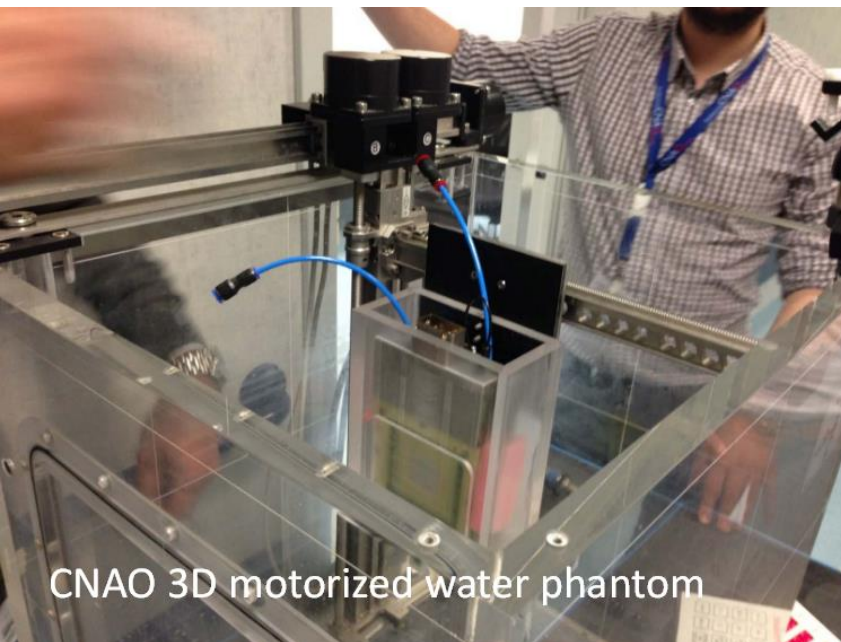
IoT-based generalised air contamination monitor



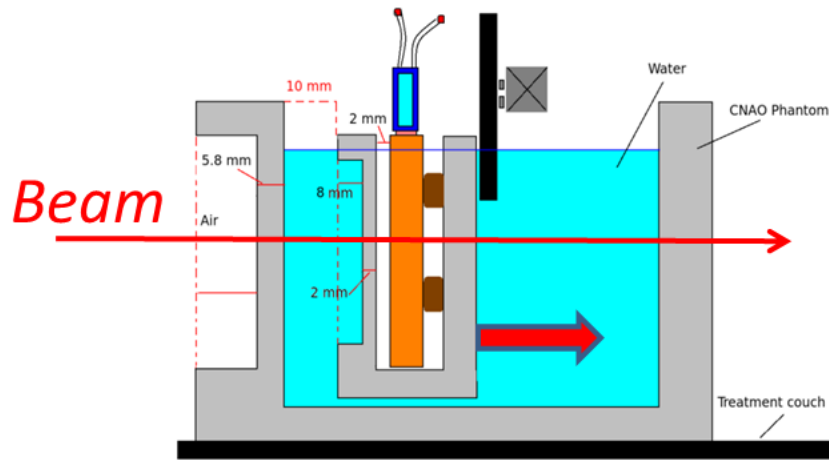
Devices connected to The WEB and Things

Energy deposition in water phantom by ^{12}C -ion beam

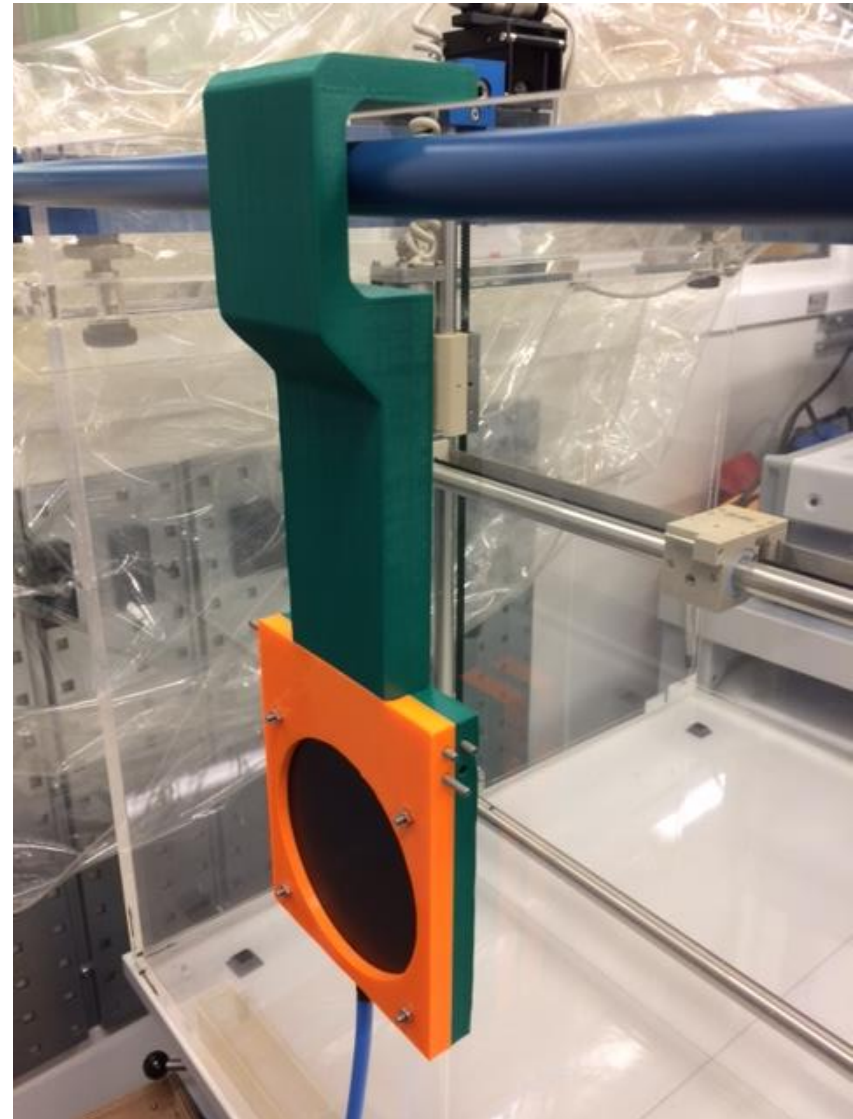
- GEMPix: triple GEM + Timepix quad readout
- Preliminary 3D-energy deposition measurements in water for carbon ion therapy
- QA, beam monitoring



Energy deposition in water phantom by ^{12}C -ion beam



- Donated by Luzern Hospital
- Moved to IdeaSquare for necessary modifications
- Funding by MAPF
- Independent measurement setup
- Tests at Linac4, then at clinical facilities



Established collaborations

- INFN Frascati (GEMPix in phantom, RaDoM)
- Polytechnic of Milan (B-RAD and W-MON)
- Chiyoda and AIST, Japan (W-MON)
- University of Barcelona (RaDoM)
- University of Aachen (GEMPix in phantom)
- CNAO, National Centre Oncological Hadrontherapy (GEMPix in phantom)

Potential collaborations

- University of Wollongong, UOW (GEMPix in phantom)
- University of Malta (W-MON)
- CIRA, Italian Aerospace Research Centre (W-MON)
- IRA, Institut Radio Physique Appliquée (W-MON, RaDoM, GEMPix in phantom)