INTEL-IRRIS: Intelligent Irrigation System for Low-cost Autonomous Water Control in Small-scale Agriculture

PRIMA
PARTNERSHIP FOR RESEARCH AND INNOVATION IN THE MEDITERRANEAN AREA

Intel-IrriS

Investigating collaboration among PRIMA projects

April 12th, 2024

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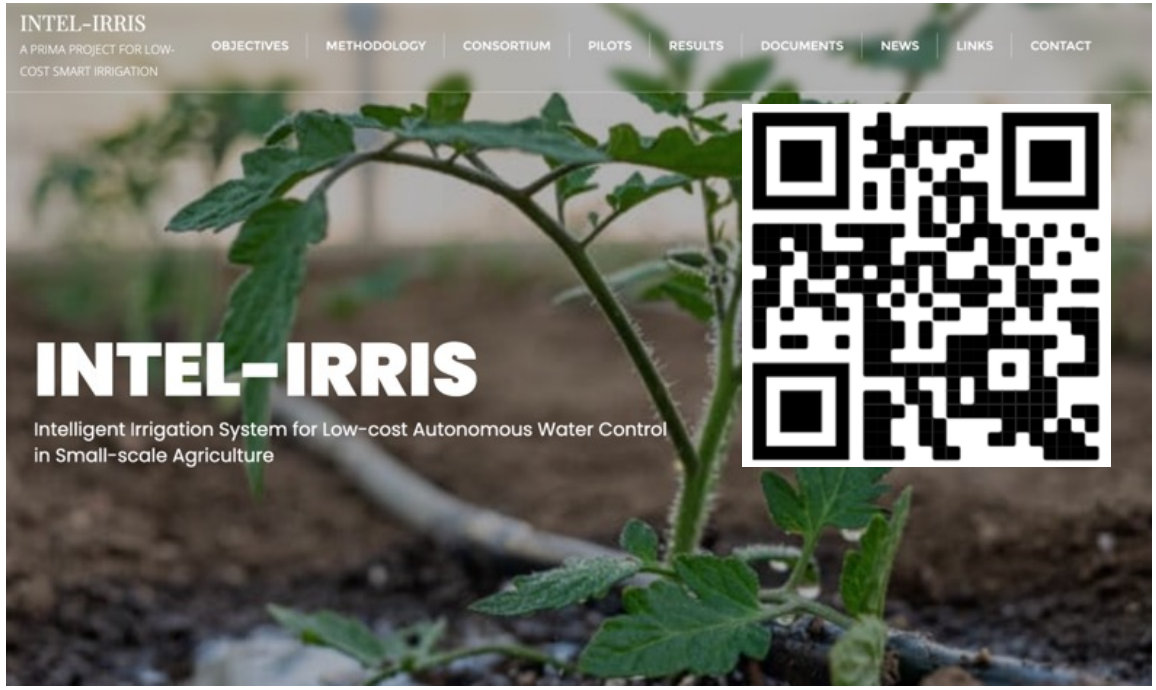
Université de Pau, France

UNIVERSITÉ DE PAU ET DES PAYS DE L'ADOUR

LIUPPA

More information on INTEL-IRRIS

- Web site: https://intel-irris.eu



AUA: Agricultural University of Athens — Greece

ENSA-Safi: National School of Applied Sciences – Safi — Morocco

INRA: National Institute of Agronomic Research — Morocco

IRD: Institute for Research & Development — France

UMAB: University A. Benbadis — Algeria

UORAN1: University of Oran 1 — Algeria

UPPA: University of Pau & Adour Country — coordinator — France

WAZIUP eV: WAZIUP association — Germany

- Twitter: https://twitter.com/Intel_IrriS

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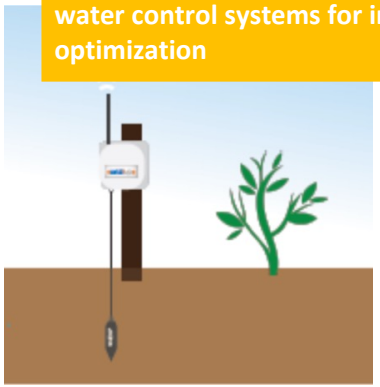
INTEL-IRRIS's main objectives

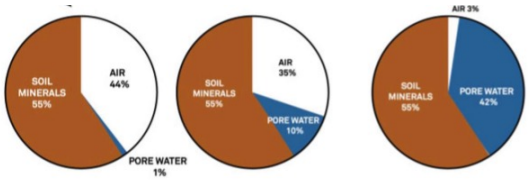
Low-cost

1 Propose low cost but highly efficient water control systems for irrigation optimization



Advanced technologies

2 Use cutting-edge technologies to propose highly innovative systems yet simple to deploy and adapted to smallholders



Autonomous Plug-&-Sense

3 Seamless integration into existing irrigation system and/or local customs and practices

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INTEL-IRRIS's starter-kit

- **From idea to reality!**

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2 versions of the soil device

A soil temperature sensor can be added

Especially for tensiometer

~ 30€

~ 60€

SEN0308
capacitive sensor

Watermark WM200
Water tension sensor

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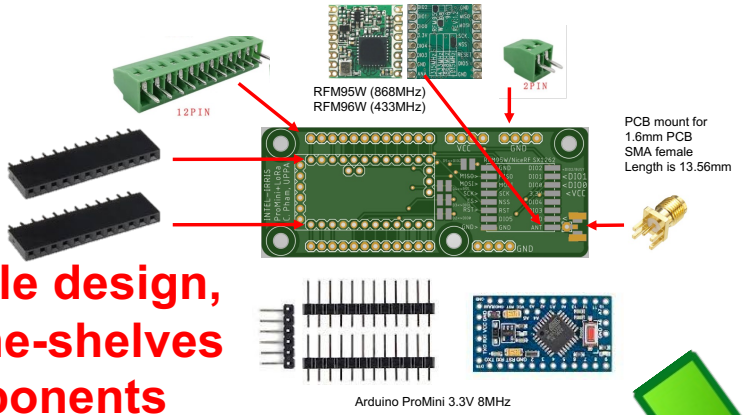
Key to low-cost design

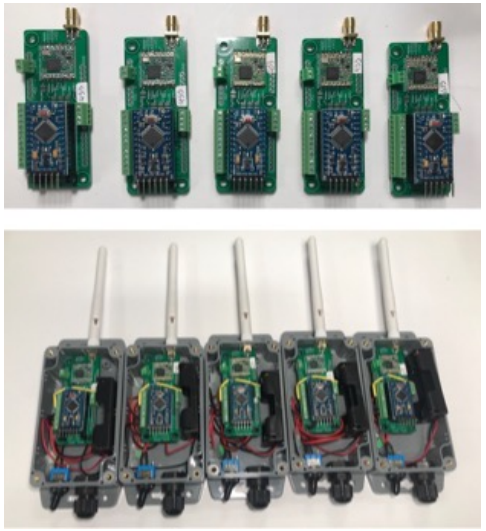


Simple design, off-the-shelves components

Easy integration

Low-cost approach

Technology transfer, Capacity building



Generic platform, easy adaptation

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Soil sensor: integration

~ 38€

~ 10€

~ 2€

~ 12€

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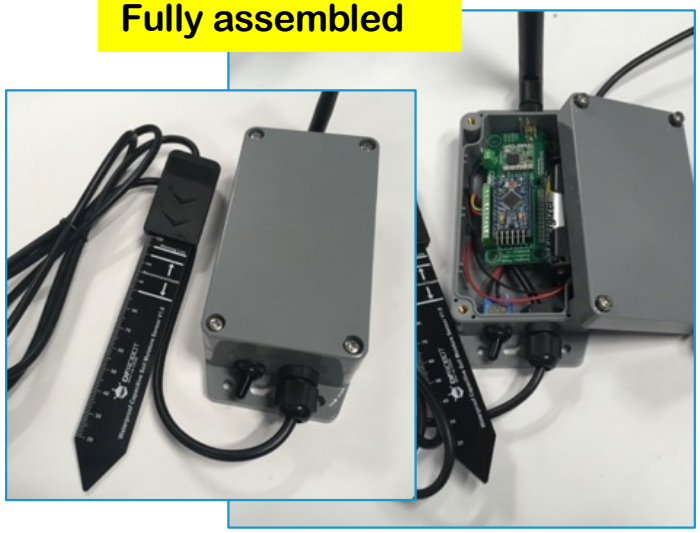
Starter-kit…in kit!

Fully assembled



Packaging in enclosure

To be assembled

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Tutorial materials

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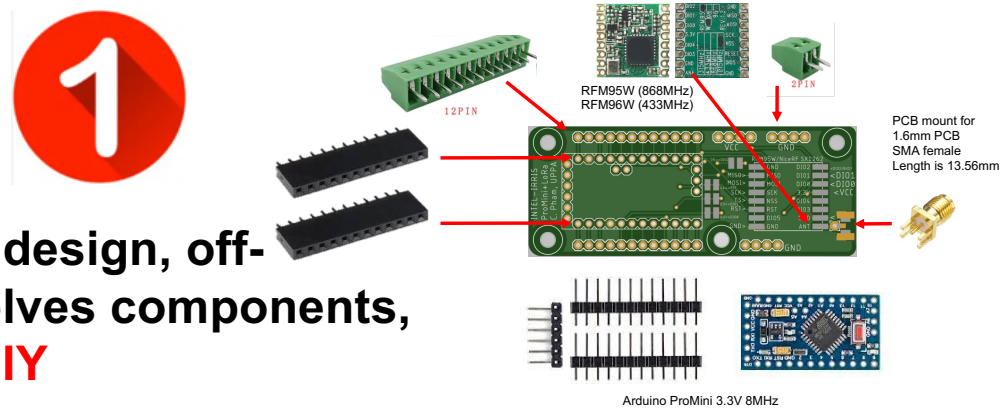
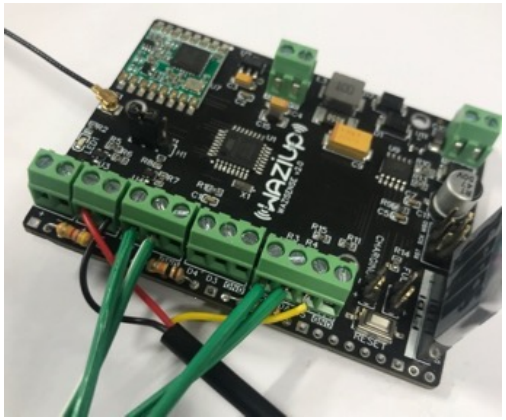
Low-cost design space

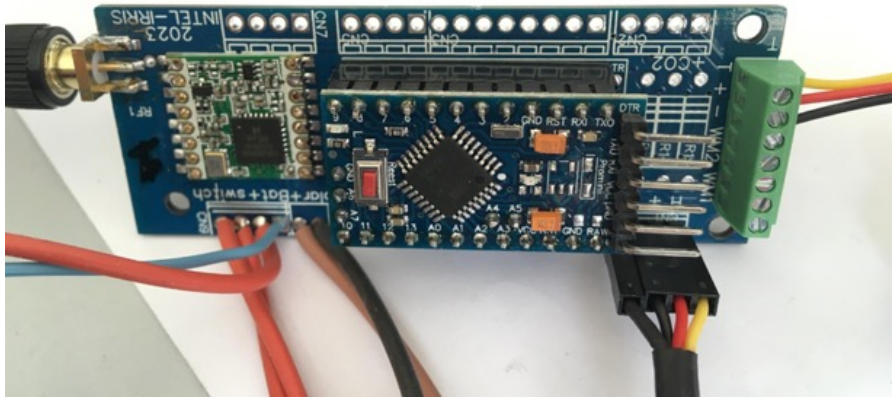


Simple design, off-the-shelves components, 100% DIY



Integrated design, off-the-shelves components, full support for solar panel, all components already soldered

Simple design, off-the-shelves components, low-cost support for solar panel, some components already soldered, mixed-DIY



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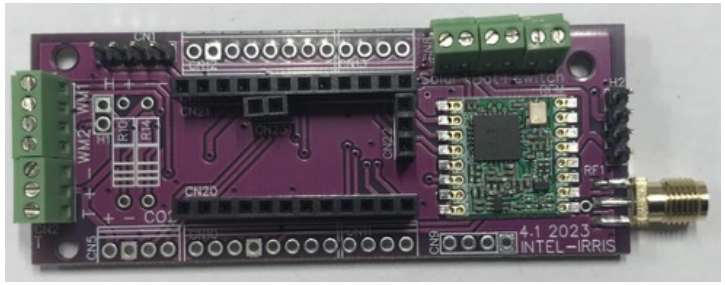
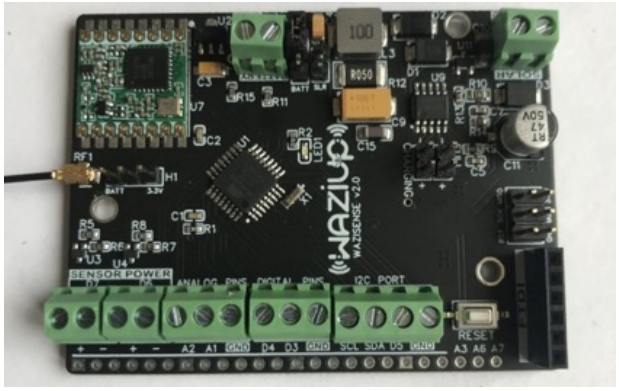
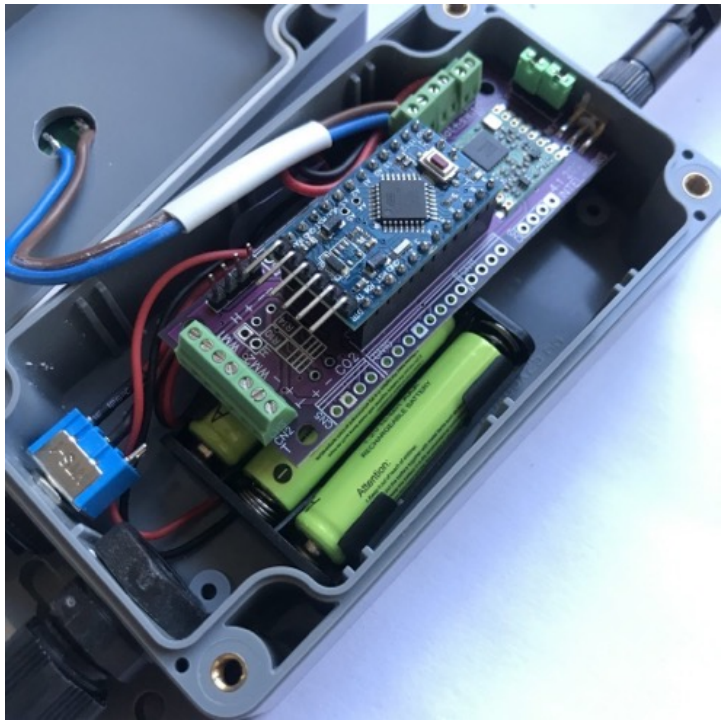
Starter-kit v3







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Transmission to gateway

Parameters for
INTEL-IRRIS gateway
(default in red)

LoRaWAN
SF12BW125
868.1MHz | 433.175MHz
Node id is 26011DAA
1 msg/60mins
1 sensor
XLPP data

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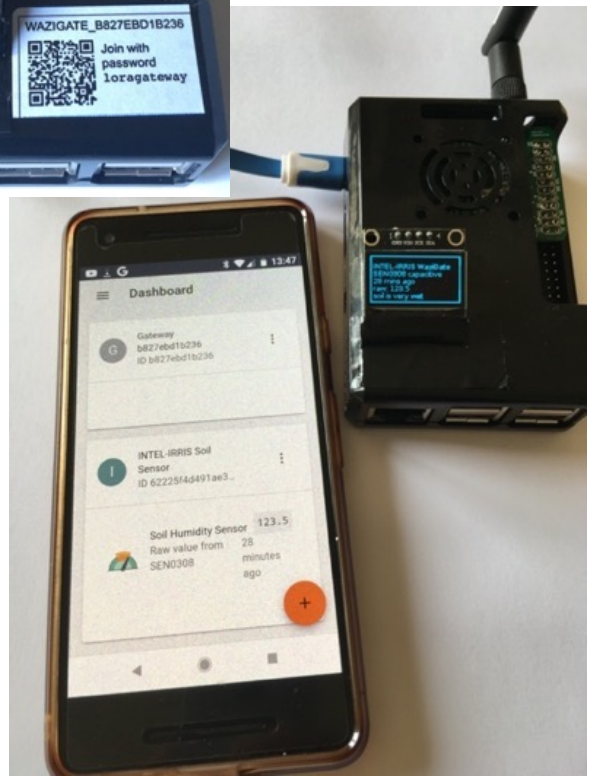
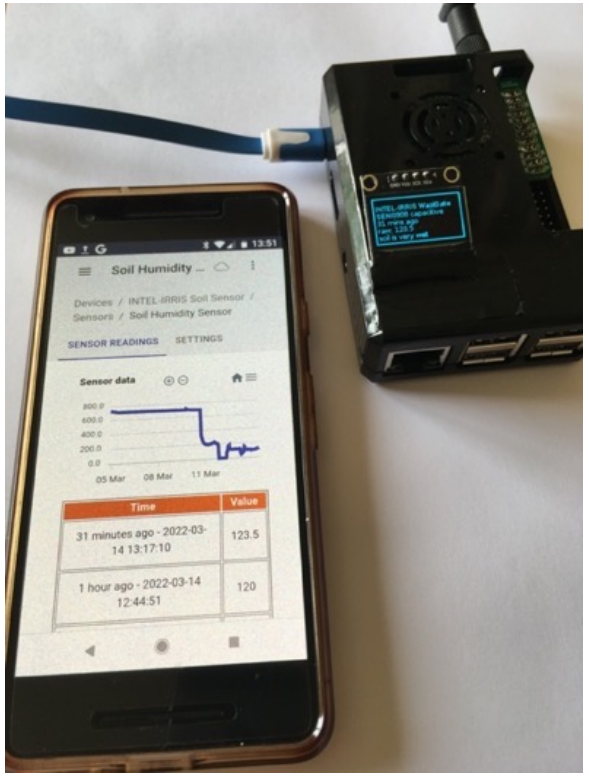
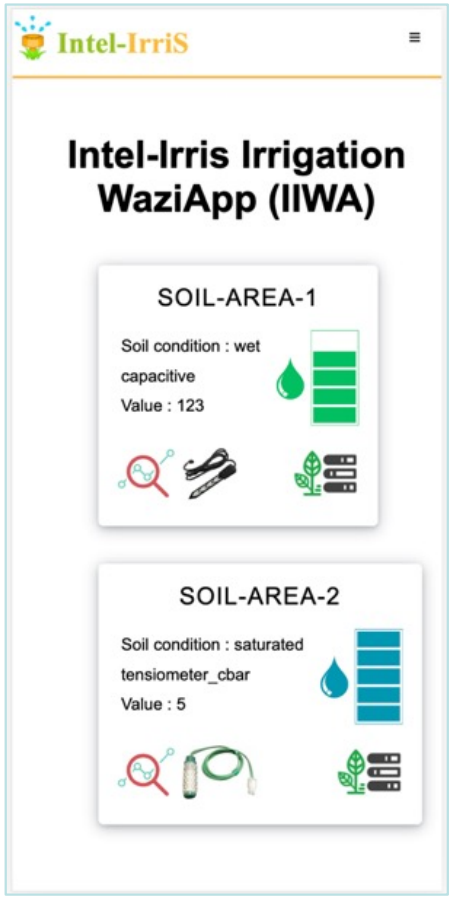
INTEL-IRRIS gateway various User Interfaces







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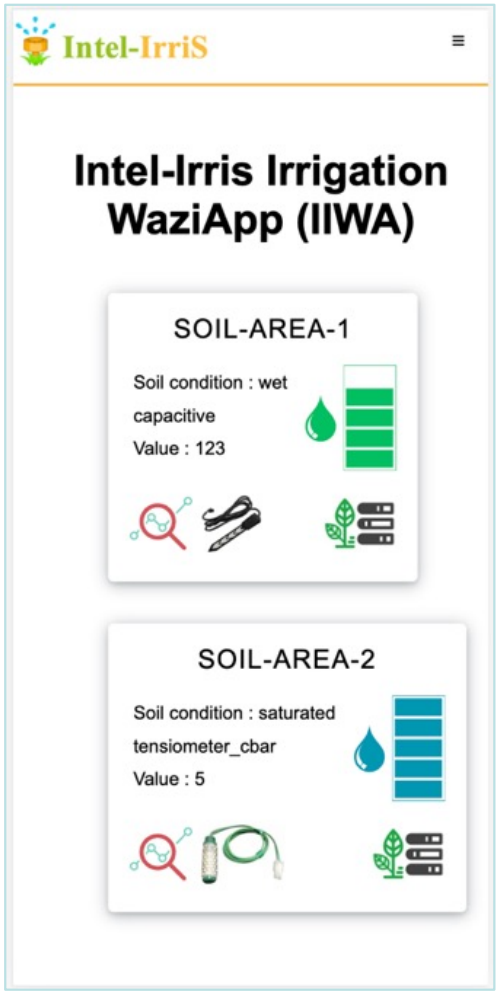
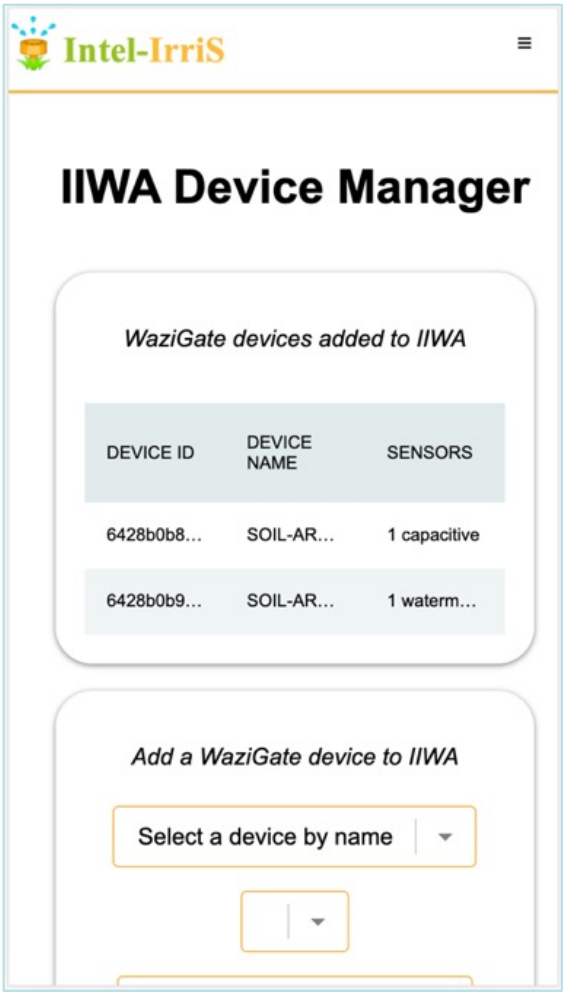
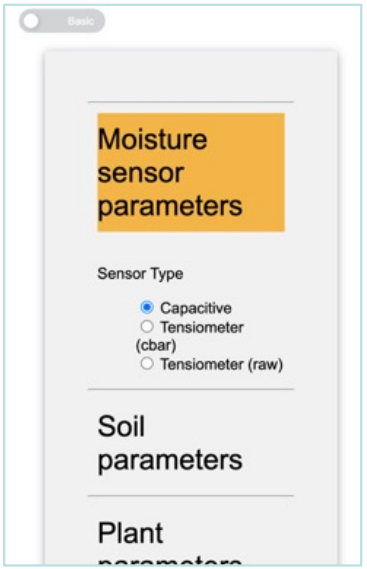
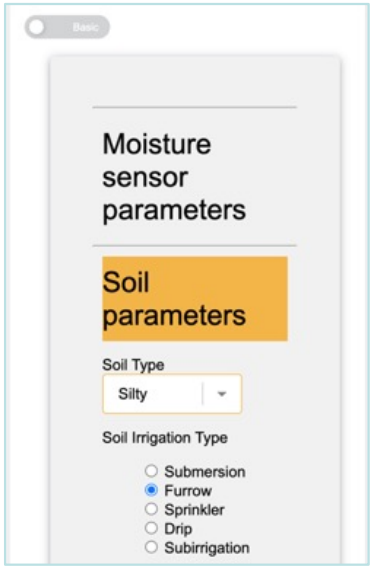
IIWA screens & configuration









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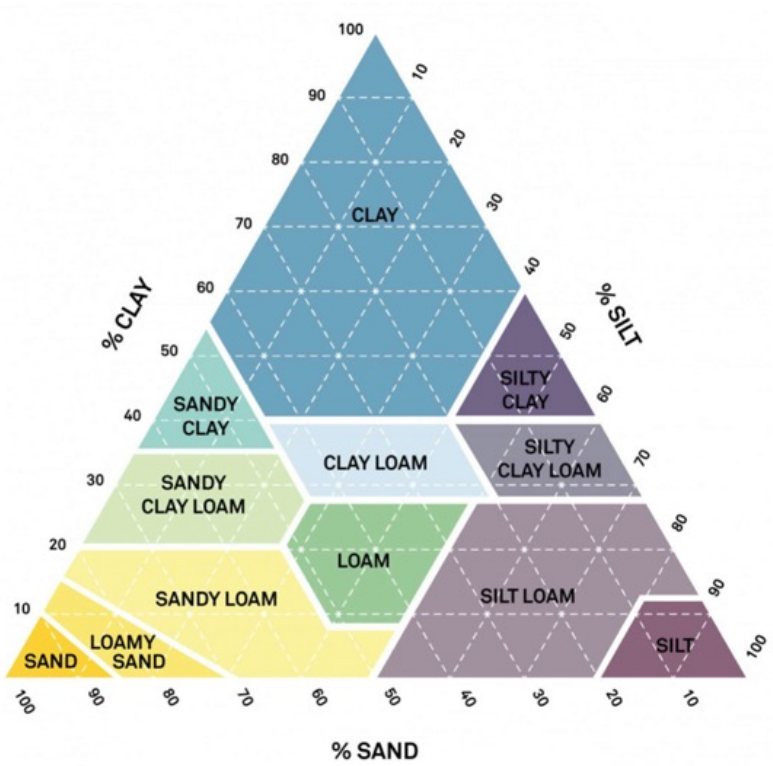
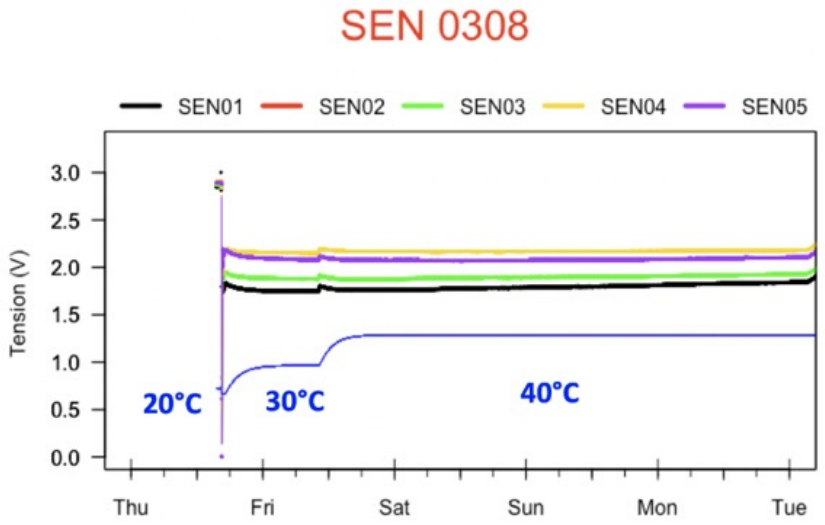
ACCURACY?

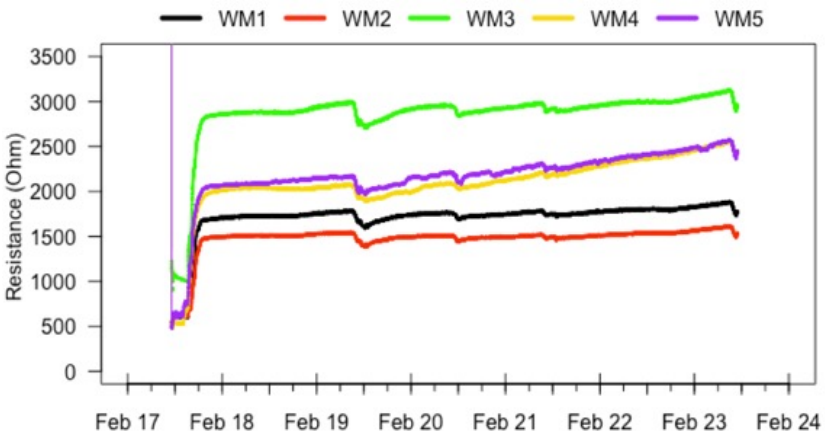
Calibration

- Soil-specific calibration
- Impact of external "noise"





Ambient air emperature has low impact, except...



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Piloting farms, visits, deployment,...

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