Blended Intensive Program 2025

International Multidisciplinary Student Projects

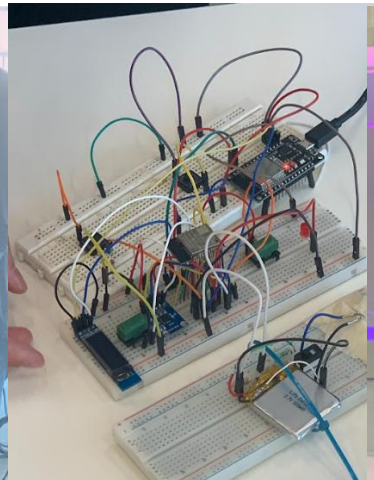
What you need to know about BIP

- BIP is an international collaboration
- International student teams are challenged with a real-life problem to develop an innovative interdisciplinary project
- 1 physical week in Antwerp. During the semester they work together in a virtual way from their home university
- The students are from different fields of study, such as: Business, Electronics, IT , Infrastructure,

Inclusive Internationalisation

- Inclusive Internationalization aims to create an environment where the benefits of global engagement are accessible to a broad and diverse range of people, contributing to a more equitable and interconnected world.
  - **It is a learning environment**
  - **Challenge : teams collaborate on project work in an international team**






BIP in practice

- BIP starts with Virtual Kickoff day on Thursday 20th of February
- **BIP ends with physical week in Antwerp 19/5 – 23/5**

Projects 2025

Automated Fish Pond Monitoring System

- This project aims to develop an Automated Fish Pond Monitoring
  - by leveraging IoT technology for real-time monitoring and management of pond water quality.
  - Develop an automated monitoring system that empowers fish farmers with real-time insights into water quality, improving fish health and productivity.

- Contact: Amos Baryashaba <amosbarya@must.ac.ug>

Automated Seaweed monitoring

- Seaweed farming is one of the most significant economic activities in Zanzibar, particularly for rural communities and women, who constitute the majority of the workforce in this sector. Introduced in the late 1980s, seaweed farming has become a vital source of income, second only to tourism in terms of economic contribution. Zanzibar is an ideal location for seaweed cultivation due to its warm, shallow coastal waters and rich biodiversity.
    - This project aims to develop an IoT-enabled system designed to optimize seaweed farming operations through real-time monitoring and management

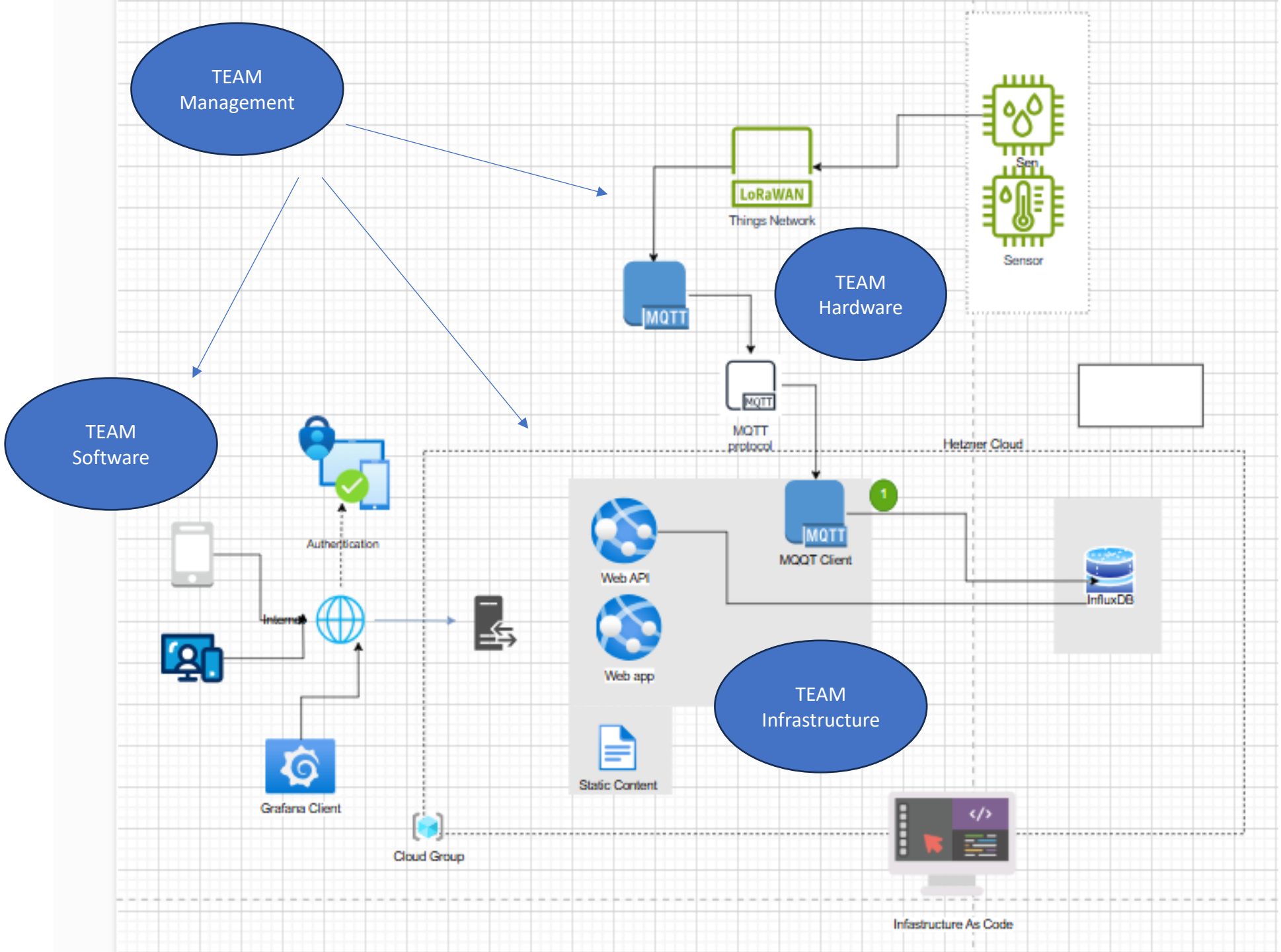
      Contact: Ali A. Abdullah <ali.abdullah@live.com>



Air quality monitoring in Dar Es Salaam

- The city of Dar es Salaam which is located on the coast is one of Tanzania's fastest-growing cities, experiencing significant environmental pollution due to rapid population growth and various economic activities, including marine operations, transportation, industries, agriculture, and household activities. This rise in environmental pollution poses serious threats to both climate change and public health.
    - This project aims to develop an IoT-enabled system designed to measure air quality
      Contact: Godfrey Luwemba <godfrey.luwemba@aru.ac.tz>

Teambuilding - wooclap


TEAM Management
TEAM Hardware
TEAM Software
TEAM Infrastructure
LoRaWAN
Things Network
Sensor
MQTT
MQTT protocol
Hetzner Cloud
Authentication
Web API
MQQT Client
InfluxDB
Web app
Static Content
Grafana Client
Cloud Group
Infastructure As Code

Roles

Hardware Developer

- Develop **LoRaWan communication**
- Build a **specific sensor module for your challenge**

👉 **Skills**: Electronics

👉 **Skills**: Sensor development

👉 **Skills**: Arduino

Infrastructure Engineer

- Deploy backend and databases to **Hetzner**.
- Configure **CI/CD pipelines** for automated deployment.
- Ensure data security and cloud storage optimization.

👉 **Skills**: DevOps

👉 **Skills**: Scripting

👉 **Skills**: Cloud Technology

Full-Stack Developer

- Develop **RESTful APIs** to handle sensor data.
- Build a **dashboard for real-time monitoring** using **Angular**

👉 **Skills**: Java, API Development

👉 **Skills**: Angular

Business Analyst & Management

- translates business needs and requirements into clear specifications for the IT team.
- Scrum Master

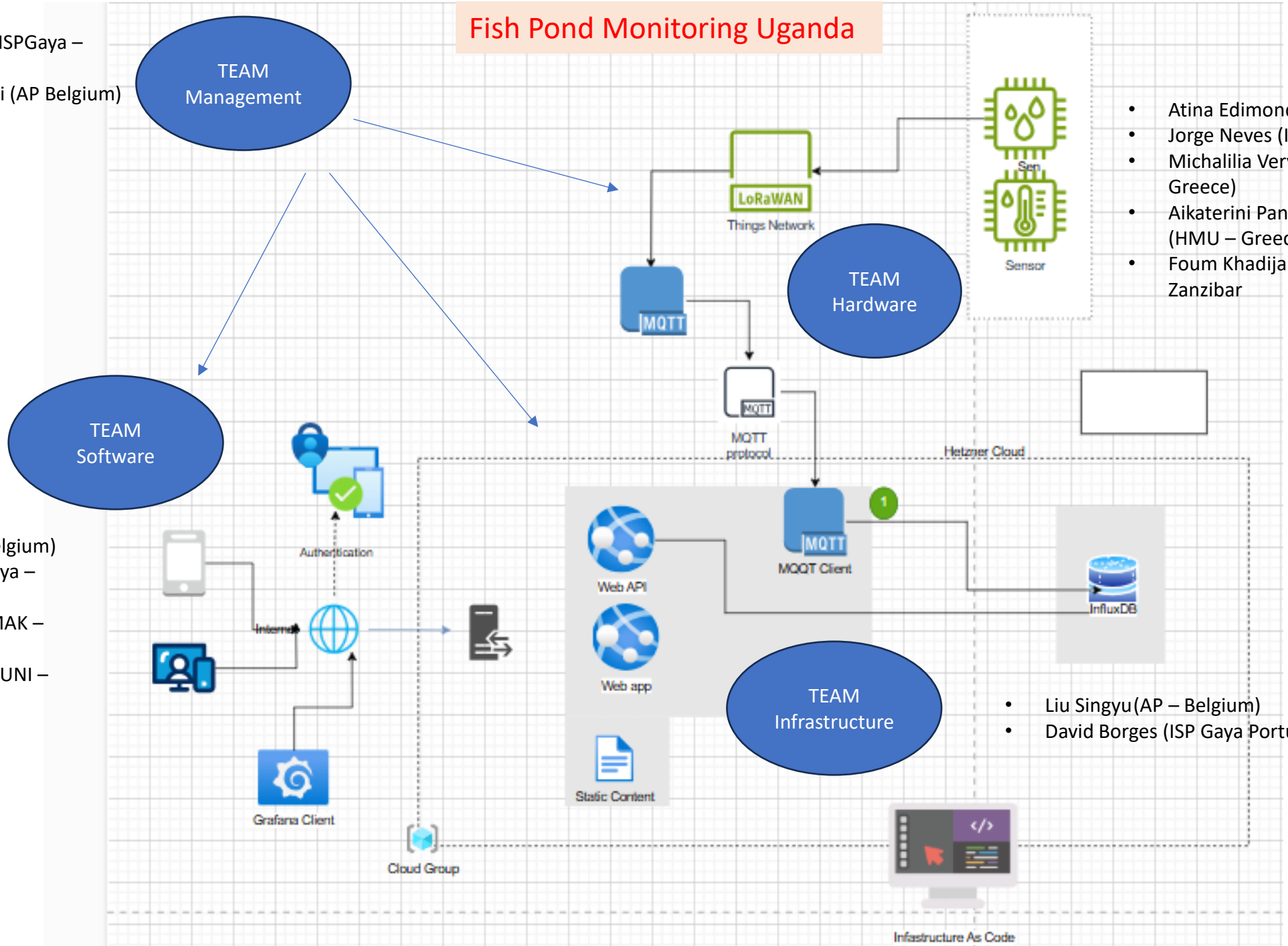
👉 **Skills**: Scrum

👉 **Skills**: Management

👉 **Skills**: Communication

Fish Pond Monitoring Uganda

- Fabio Magalhaes (ISPGaya – Portugal
- Houssam El Gharbi (AP Belgium)



- Atina Edimond (MUST – Uganda)
- Jorge Neves (ISP Gaya – Portugal)
- Michalilia Ververaki (HMU – Greece)
- Aikaterini Panagiotakopoulou (HMU – Greece)
- Foum Khadija Mati (KIST – Zanzibar

- Adjei Henri (AP – Belgium)
- Jose Moreira (ISPGaya – Portugal)
- Jovin Kyomugaso (MAK – Uganda)
- Christine Yokoko (MUNI – Uganda-

- Liu Singyu(AP – Belgium)
- David Borges (ISP Gaya Portugal)

Seaweed Monitoring Zanzibar

- Fabio Magalhaes (ISPGaya – Portugal
- Houssam El Gharbi (AP Belgium)

TEAM Management

TEAM Hardware

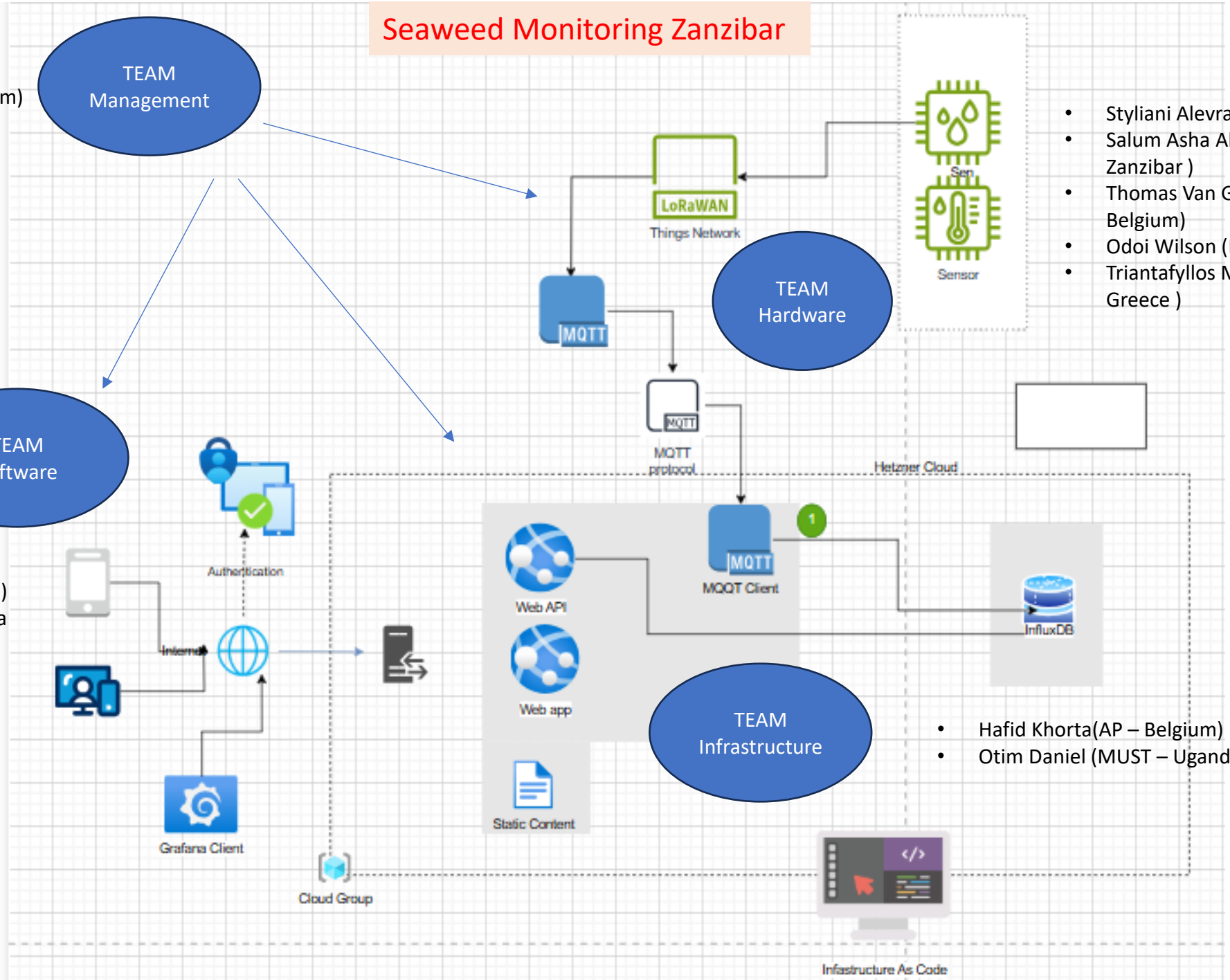
- Styliani Alevra (HMU – Greece)
- Salum Asha Abdalla (KIST – Zanzibar)
- Thomas Van Genechten (AP – Belgium)
- Odoi Wilson (MUST – Uganda)
- Triantafyllos Mitsou (HMU – Greece)

TEAM Software

- Desel Tenzin (AP – Belgium)
- Diana Namutosi(Must - Uganda)
- Rafael Marques Santos (ISPGaya – Portugal)
- Diogo Henriques (ISPGaya – Portugal)

TEAM Infrastructure

- Hafid Khorta(AP – Belgium)
- Otim Daniel (MUST – Uganda)



Air Quality Monitoring Dar Es Salaam

- Fabio Magalhaes (ISPGaya – Portugal
- Houssam El Gharbi (AP Belgium)

TEAM Management

TEAM Hardware

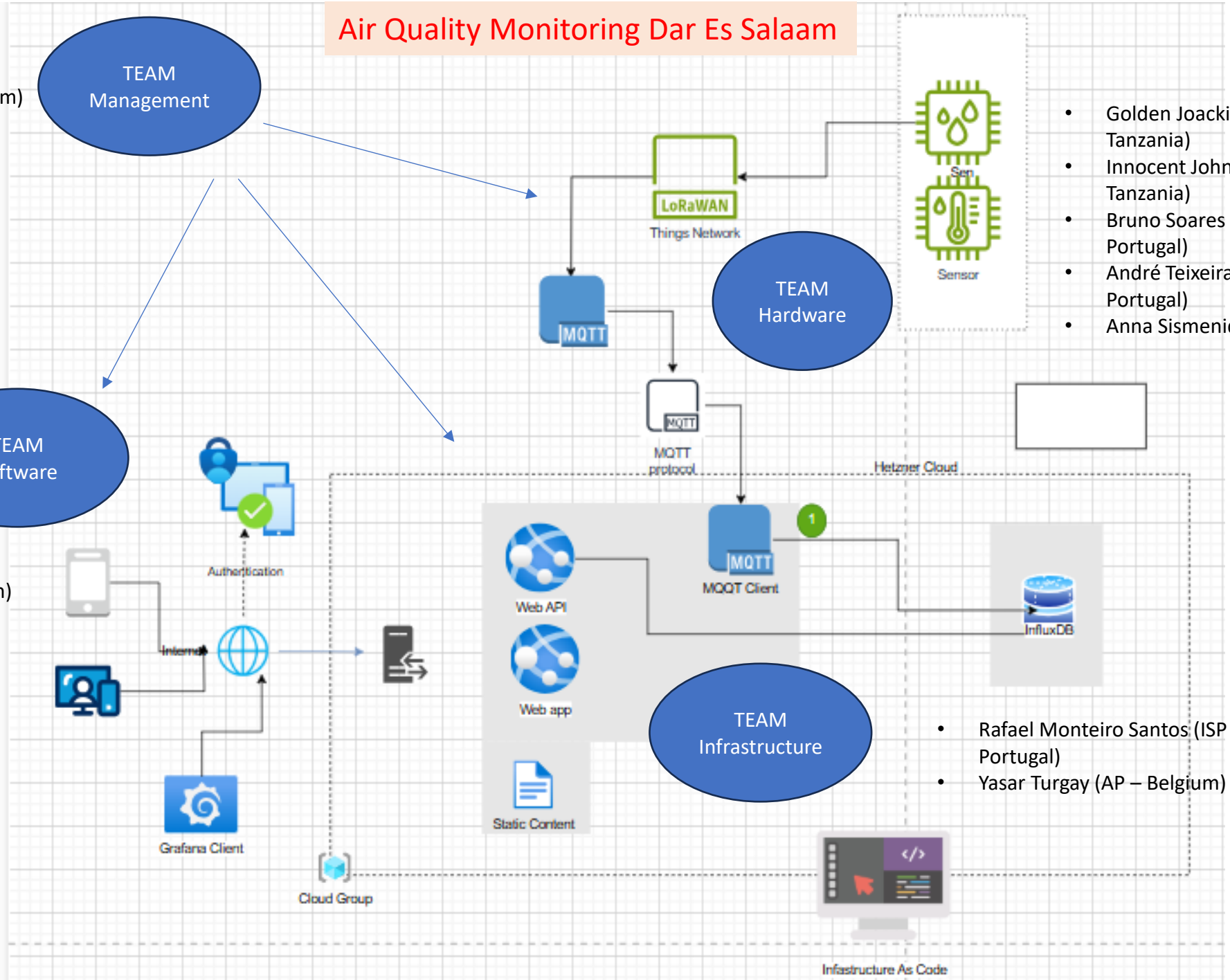
- Golden Joackim Haule (Ardhi – Tanzania)
- Innocent John Kiwoly (Ardhi – Tanzania)
- Bruno Soares (ISPGaya – Portugal)
- André Teixeira (ISPGaya – Portugal)
- Anna Sismenidi (HMU – Greece)

TEAM Software

- Yang Anna (AP – Belgium)
- Francois Manywa (AP – Belgium)
- Daniel Adegas (ISPGaya – Portugal)
- Mateo Robert (ISPGaya – Portugal)
- Benard Musinguzi (MUNI – Uganda)

TEAM Infrastructure

- Rafael Monteiro Santos (ISP Gaya Portugal)
- Yasar Turgay (AP – Belgium)



Collaboration tool

Notion

https://www.notion.so/Fish-pond-Monitoring-Uganda-1a0d8c88c70380ca8db0d33309e606bf?pvs=4

https://www.notion.so/Air-Quality-Dar-Es-Salaam-1a0d8c88c703805cb273f29802d00373?pvs=4

https://www.notion.so/Seaweed-Monitoring-Zanzibar-1a0d8c88c70380ec816cd559d6a3ab14?pvs=4

Coaches

- All Software teams: Jeroen De Vos (BEL) & Rose Nakibuule (UG)
- All Hardware teams : Nelson Neves (POR) & Eunice Likotiko (TAN) & Ali Abullah
- All Infra teams : Manolis (GR) + Amos Baryashaba + Geoffrey Andogah
- 1 Management team: Tom Peeters (BEL)

All information on “Google Drive”

- Challenges, presentations, contacts

Lab equipment

- Official documents : GOOGLE DRIVE
- Team communication: Zoom, teams, discord, whatsapp
- Team software: *https://gitlab.apstudent.be/groups/bachelor-it/blended-intensive-project/24-25*
  - *Contact De Vos Jeroen: jeroen.devos01@ap.be*
- *Team infrastructure: Hetzner cloud*
  - *Contact Tom Peeters : tom.peeters@ap.be*
- *Team IoT*
  - *TTN Network: https://eu1.cloud.thethings.network/console/applications/bip2025/collaborators*
  - *Contact Tom Peeters : tom.peeters@ap.be*
  - *Ordered : water quality sensors, turbidity sensor, oxy sensor, ph sensor, environmental sensors, lora connectors, development boards..*

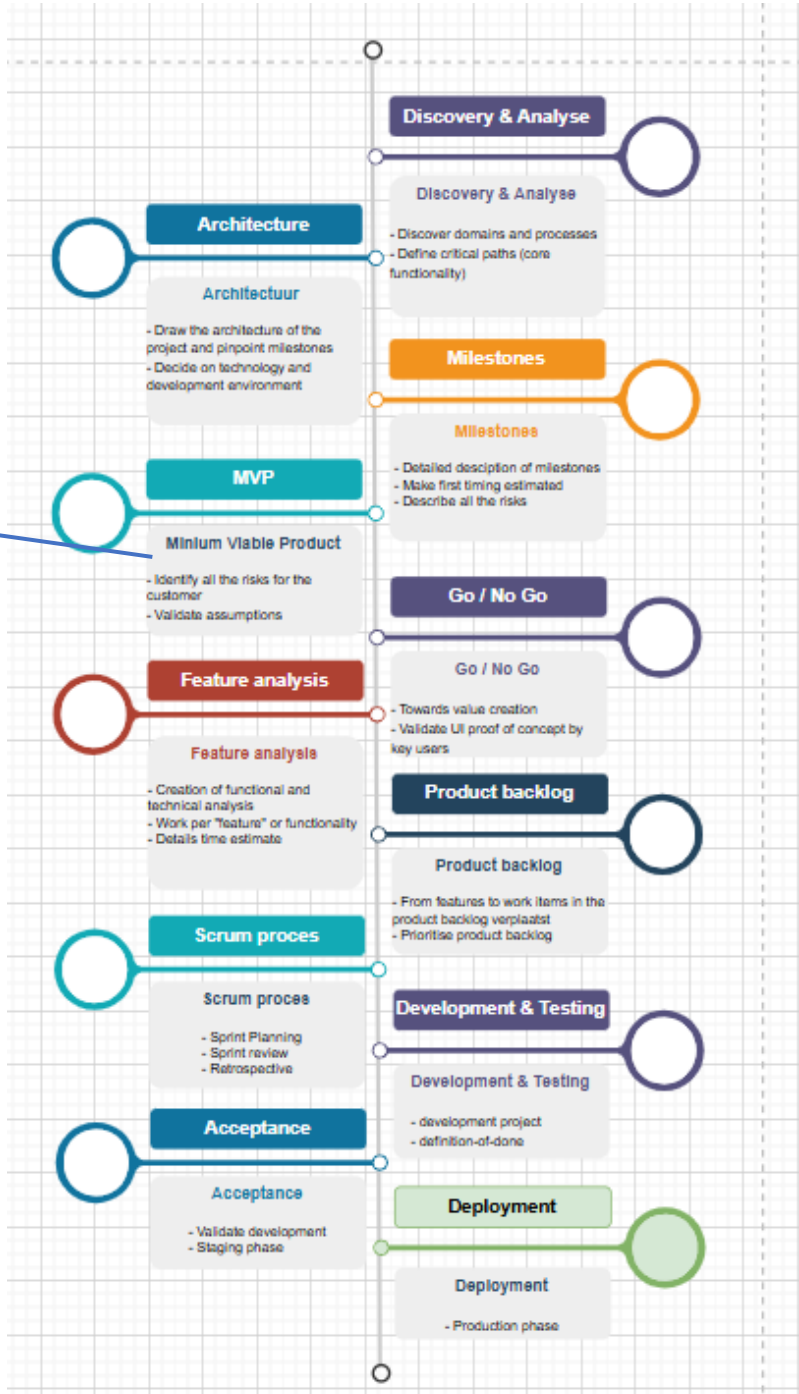
Pragmatic Project approach

SHOW BASIC WORKING NETWORK ENVIRONMENT

IoT -> generate random number & transfer to TTN network

Infra -> get random number from MQTT service bus and store in cloud

SOF -> get random number from cloud & visualize



Online training sessions – to be planned

- Collaboration in software projects ~ Jeroen De Vos – 27th feb 4pm CET
- Scrum proces for development teams ~ Manolis Lourakis
- Intercultural communications

Timings

20-2-2025 Kick off BIP 2025 : 4pm -> 6pm CET

Every week coaches will have a meeting with the international team

Local lecturers will coach local team

17-4-2025 Mid-term presentations

19-5-2025	FINAL WEEK AP - Antwerp
20-5-2025	
21-5-2025	
22-5-2025	
23-5-2025	

And now what?

- Next week: 27th of February. **Workshop gitlab** :*"how to collaborate in software projects"*
- Everyone is up & running
  - You need to know how you can start developing
  - You need to know how to reach your team members
  - You are contacted by the management and your first team meeting is scheduled
    - Target: MVP up and running ASAP