Smart Aquaponics

Vlaams Aquacultuur Symposium 2021:
blik op verduurzaming

Pannecoucque Nick
Provinciaal Technisch Instituut

west-vlaanderen
de gedreven provincie

Campus Techniek & Design

Campus Wetenschap & Groen

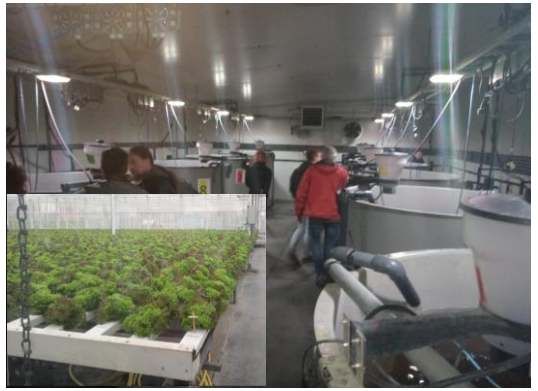
Aquaponics: Project examples

Education:

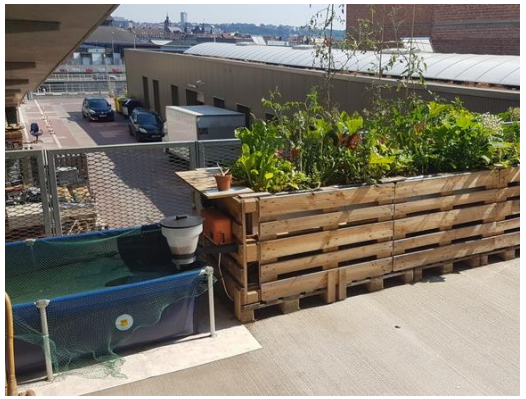
PTI, 2010
Secondary school

Uliège, 2012
University

PCG, 2015
Research center



Aquaponiris, 2015
NGO



Aquaponie BXL, 2016
NGO

Don Bosco, 2017
Secondary school

Aquaponics: Project examples

Small Professional:

Jardin de l'usine
Aquaponie BXL
2018

Ferme des 3 moutons
2021

Atelier de Bossimé
2019

Aquaponics: Project examples

Professional:

Aquaponics: Project examples

Professional:

TomatoMasters

AQUA4C

Aquaponics emergence

Aquaponic systems are diverse

Aquaponics is a new technology

->No advanced teaching programs

->No specifics tools

How to foster aquaponics development?

Smart Aquaponics, an application with:

- Monitoring tool
- Simulator
- Training program

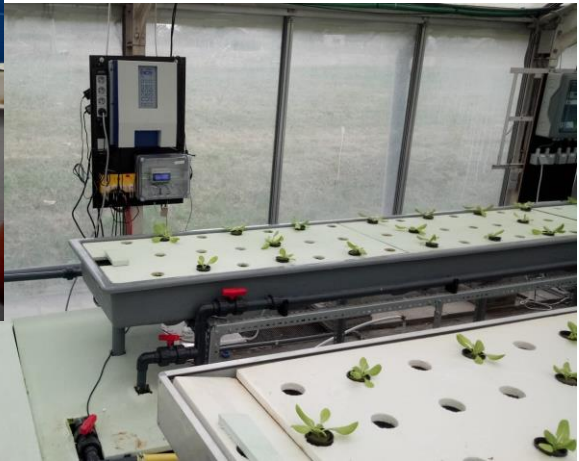
Monitoring tool

- Stay connected with your aquaponics system
- Fish & plant informations in one application
- Anticipate accidents

Smart Aquaponics: Sensing

The data acquisition chain collects data from different sensor systems

IKS Aquastar



Smart Aquaponics: Sensing

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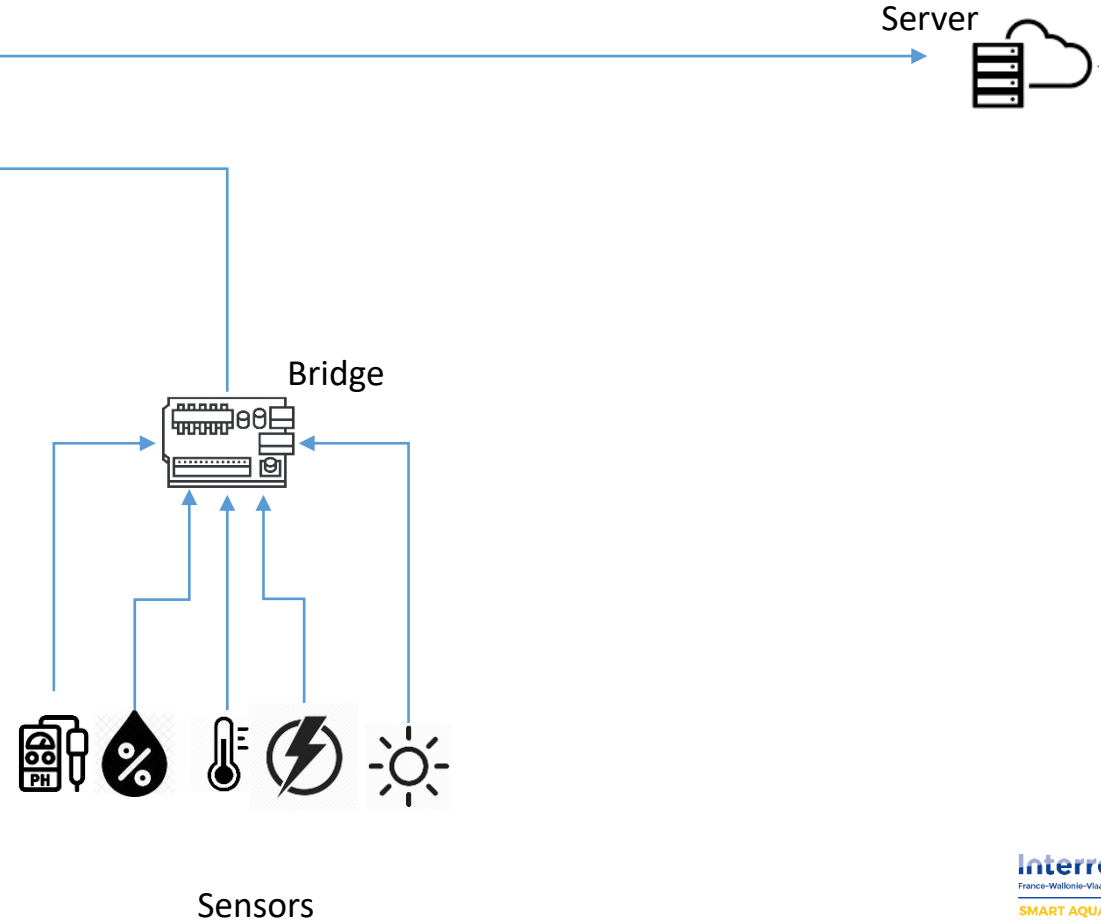
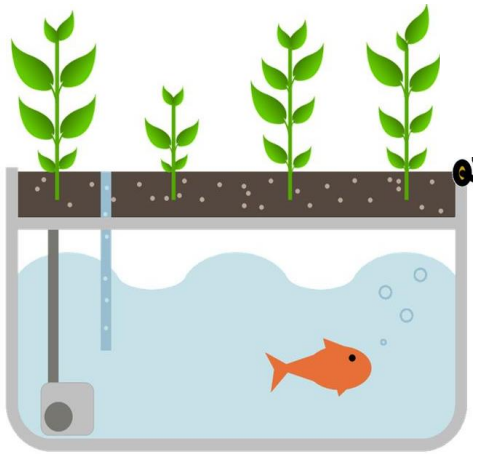
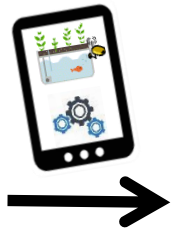
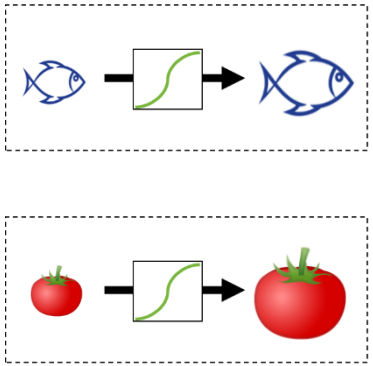


Simulator

- Design aquaponic system in the application
- Simulate different scenarios

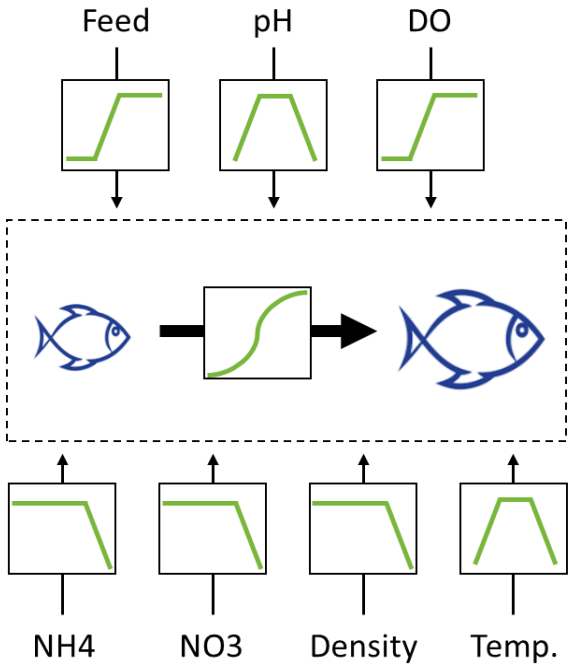


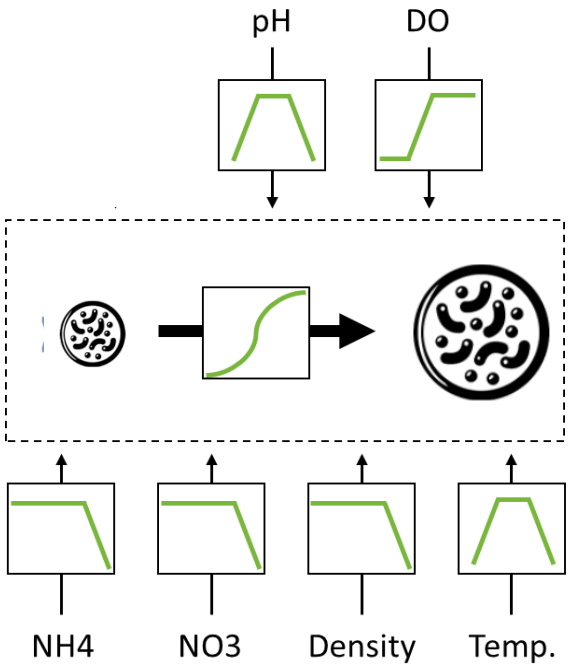


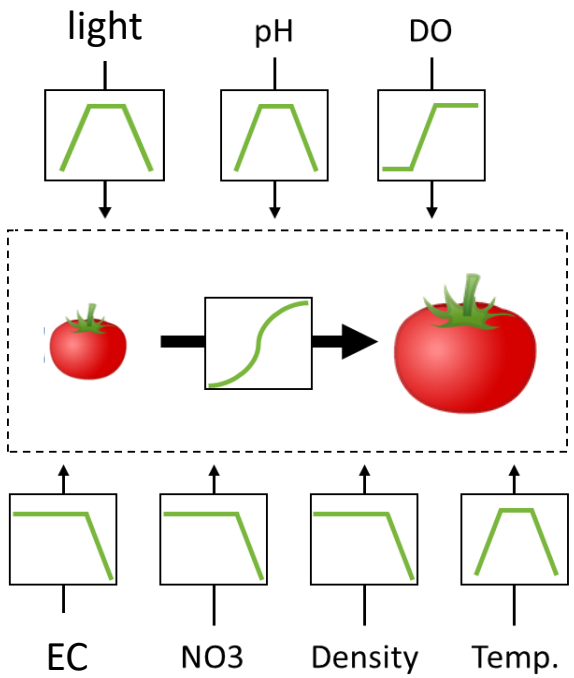


Smart Aquaponics Model

Our model simulates each objects of a system

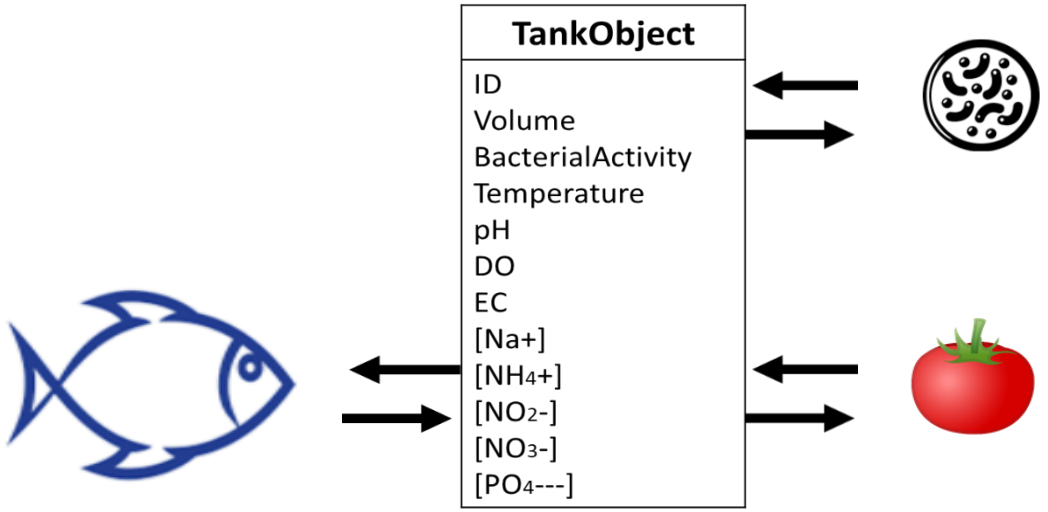






Smart Aquaponics Model

Interactions between objects enable simulation of complex systems



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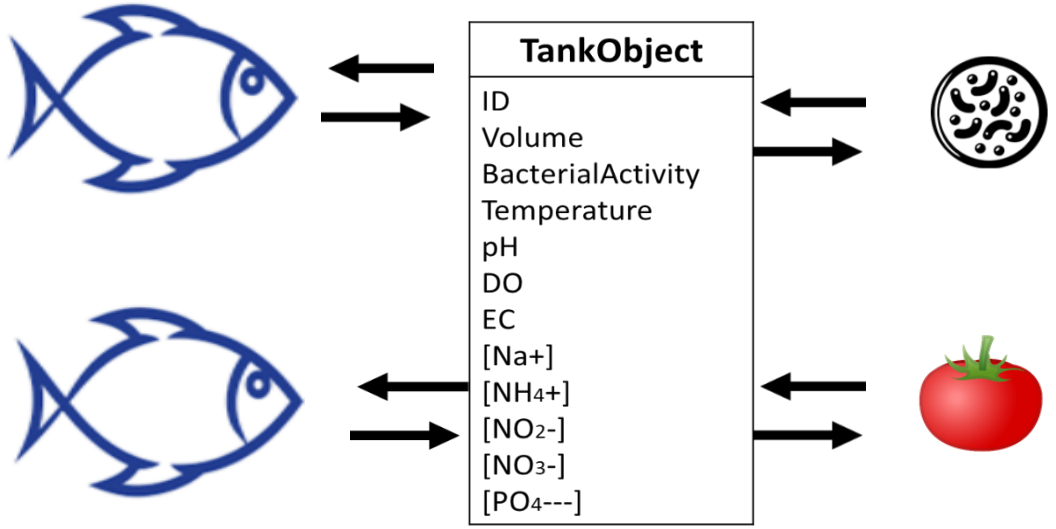

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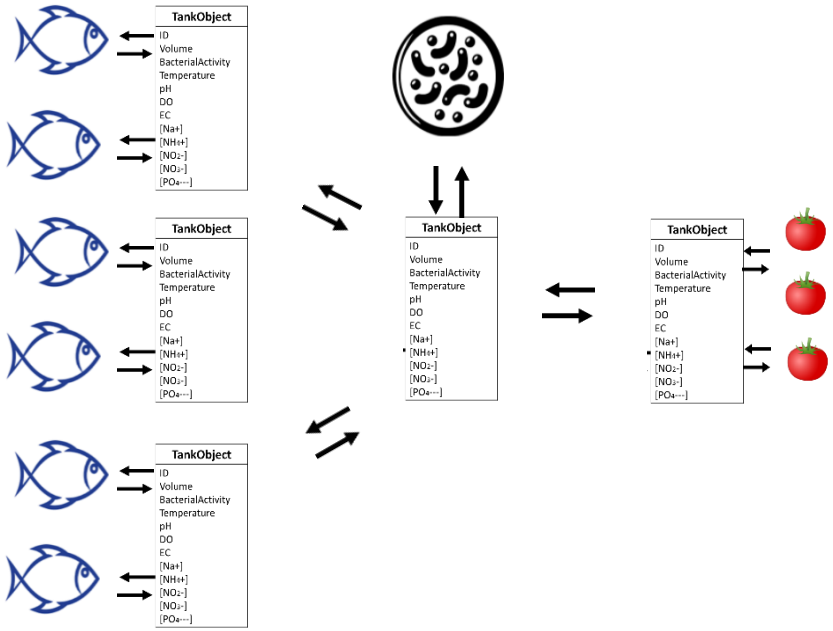
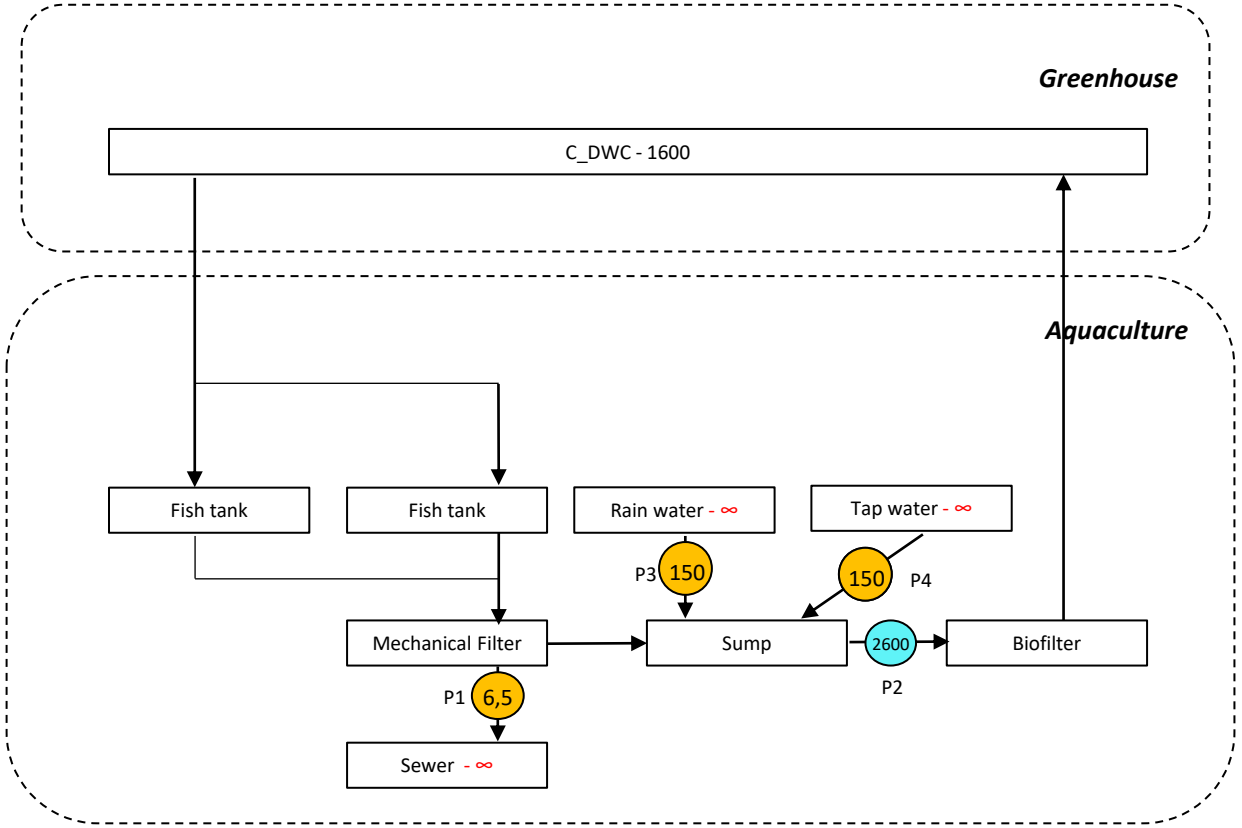


Smart Aquaponics Model

Practical exemple: Paff Boxx

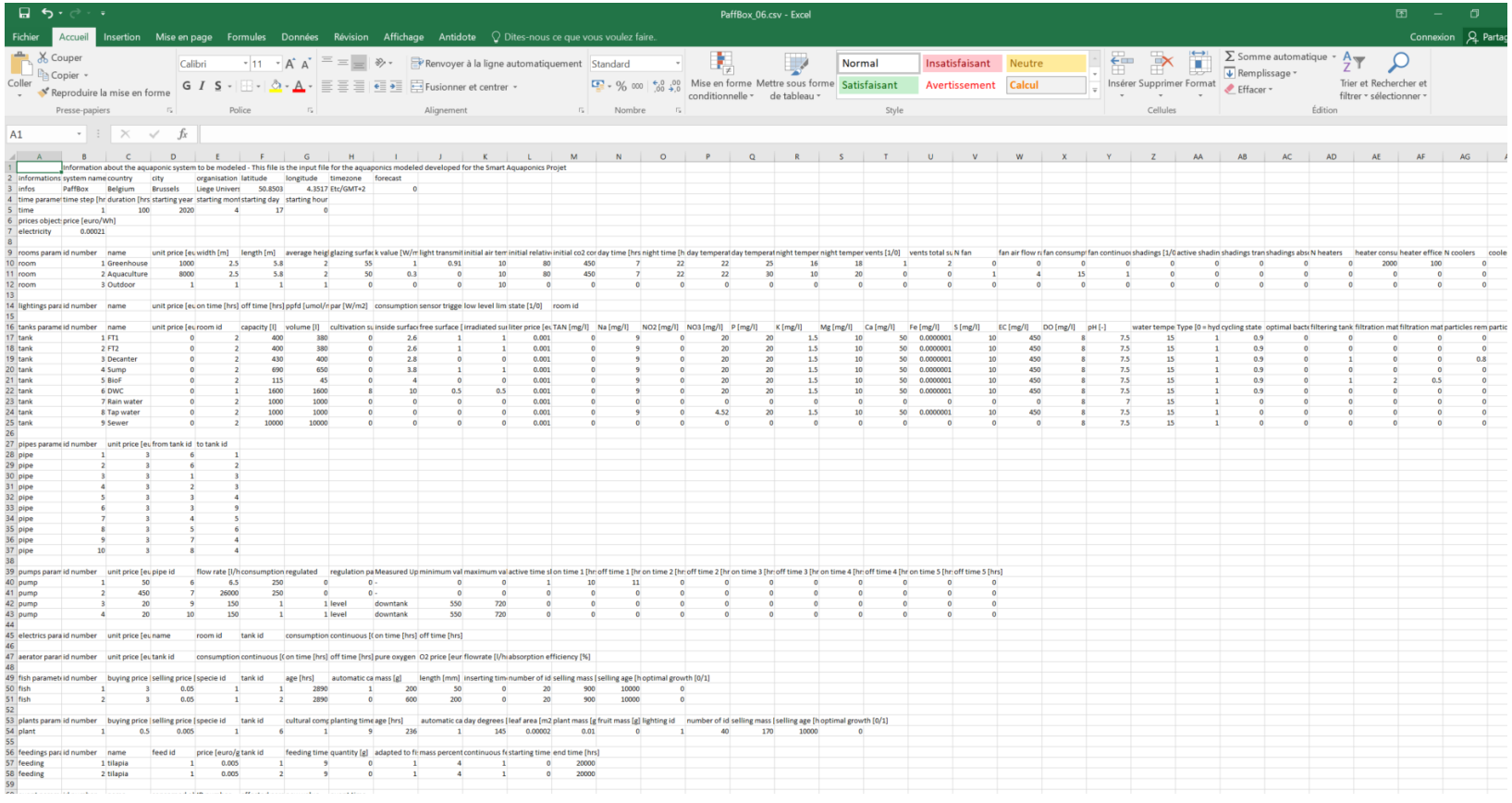
Smart Aquaponics Model

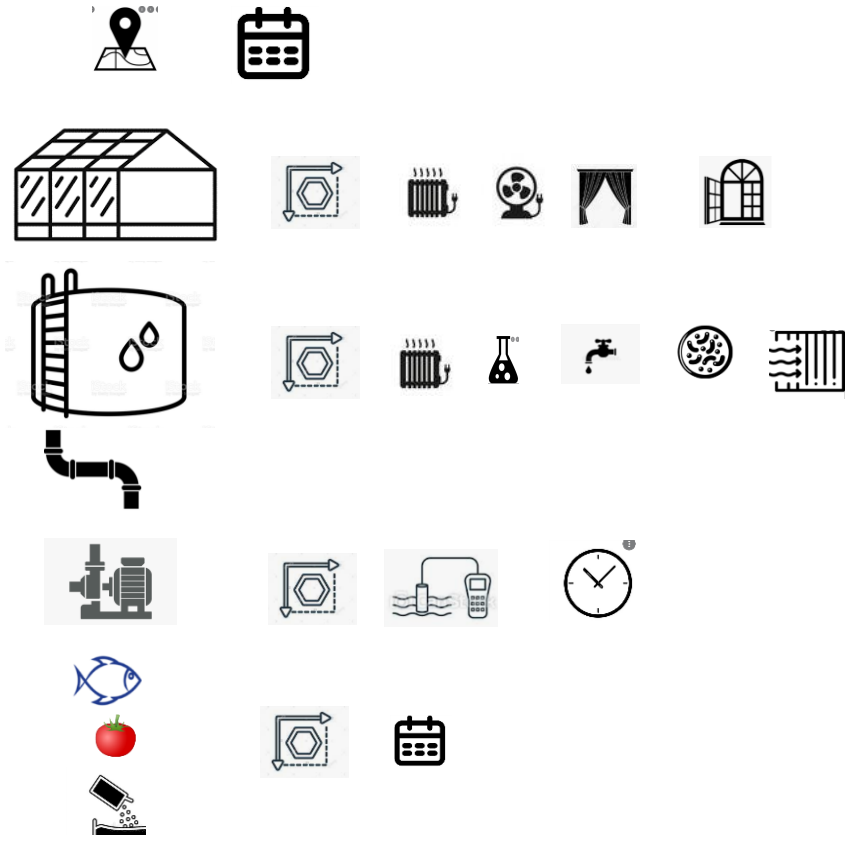
Practical example: Paff Box



Smart Aquaponics Model

Practical example: Paff Boxx

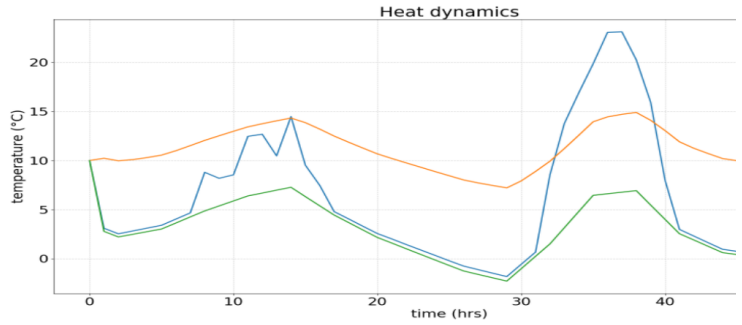


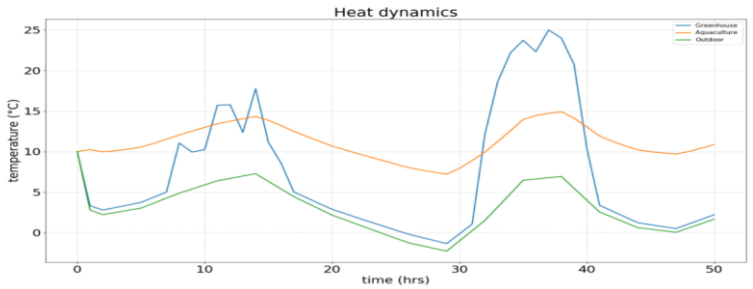


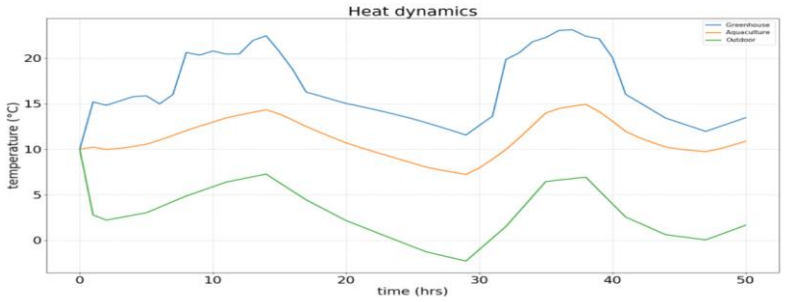
Smart Aquaponics Model

Practical example: Paff Box: T°

Greenhouse
Fish Room
Outside







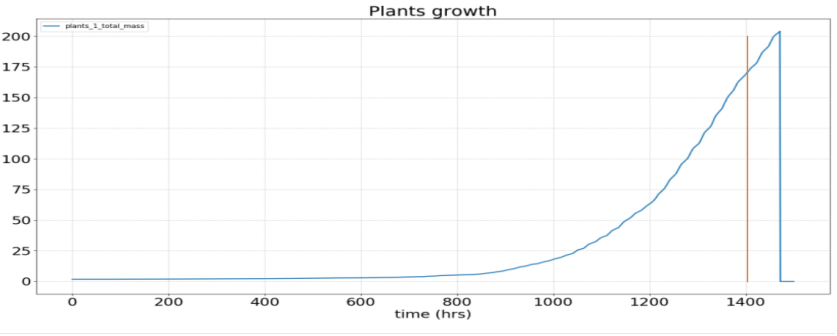
Normal

Insulation

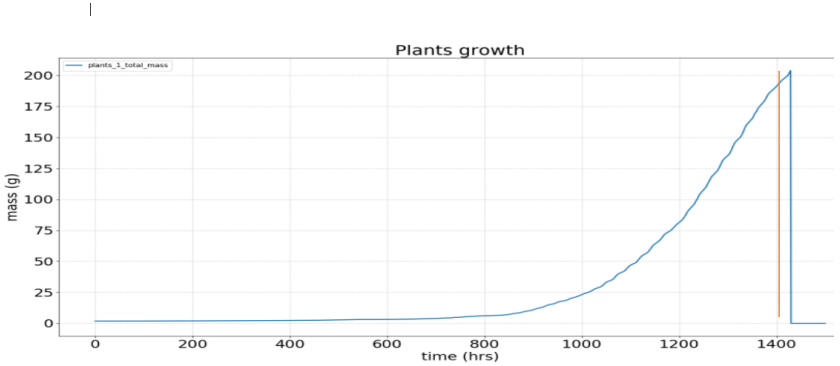
Heating system

Smart Aquaponics Model

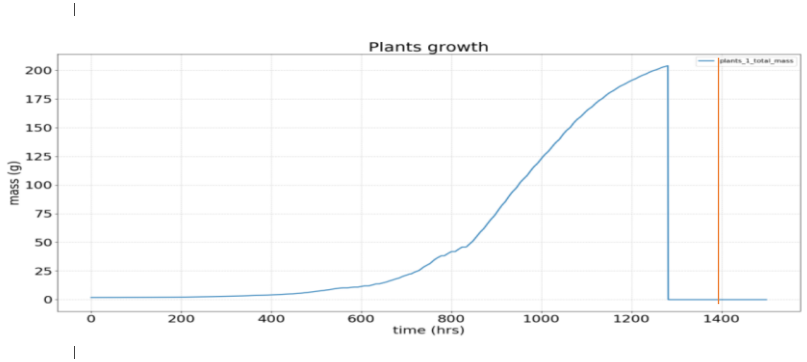
Practical example: Paff Box: Lettuce



Normal



Insulation



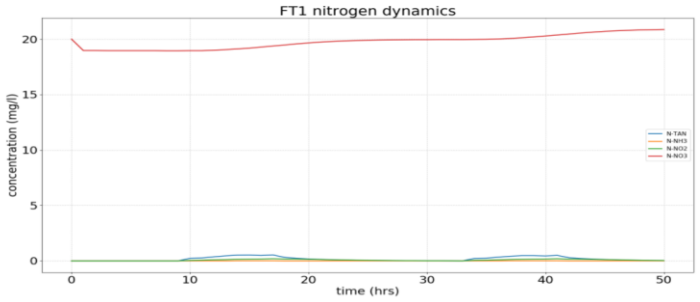
Heating system

Smart Aquaponics Model

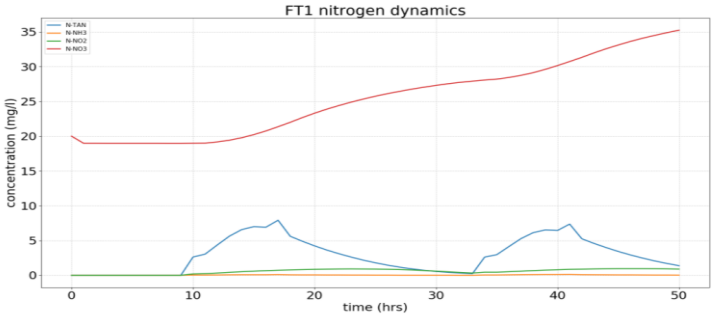
Practical example: Paff Box: N

Nitrate

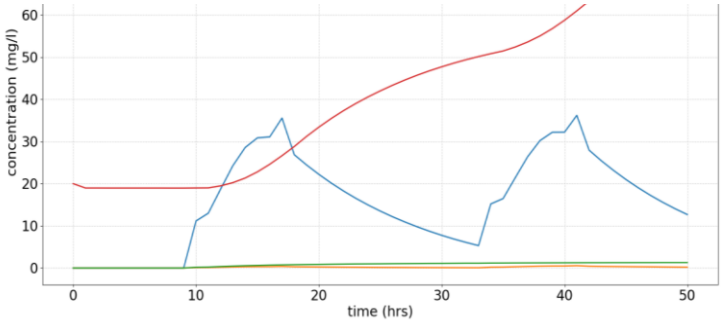
TAN (Amonia+Amonium)



20 fish/tank



200 fish/tank



800 fish/tank

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