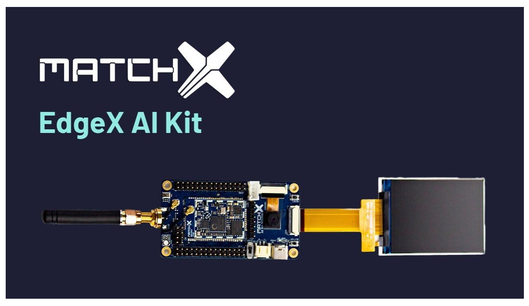
1. AI hardware accelerator for LPWAN



- LPWAN platform with integrated AI HW accelerator.
- AI onboard vs. cloud processing trade-off.
- Smart agriculture dataset for pest monitoring.

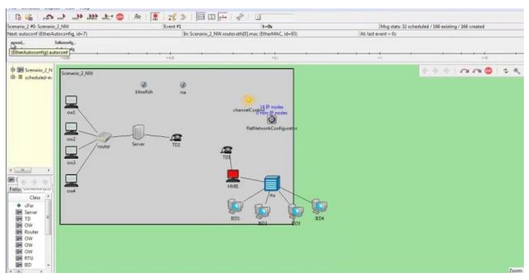
Recommended skillset: C programming; Embedded Systems; Artificial Intelligence; Basic Computer Networking Principles

2. LoRa based ECG

- Explore the utilization of LoRa technology for Electrocardiography (ECG) monitoring.
- Evaluate energy consumption, real-time delays, and robustness, including non-line-of-sight and mobile operations.
- ECG sensor attached to a LoRa module to assess remote monitoring applications

Recommended skillset: C programming; Embedded Systems; Basic Computer Networking Principles

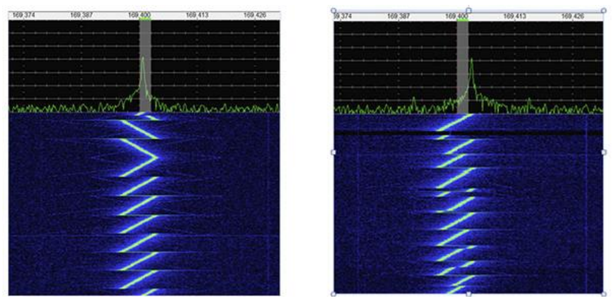
3. Reinforcement Learning mobile LoRa GW



- Integrate a Reinforcement Learning model within OMNet++
- LoRa mobility should be adjusted by the model
- Evaluate various scenarios and topologies

Recommended skillset: C++ programming; Computer; Networks principles;

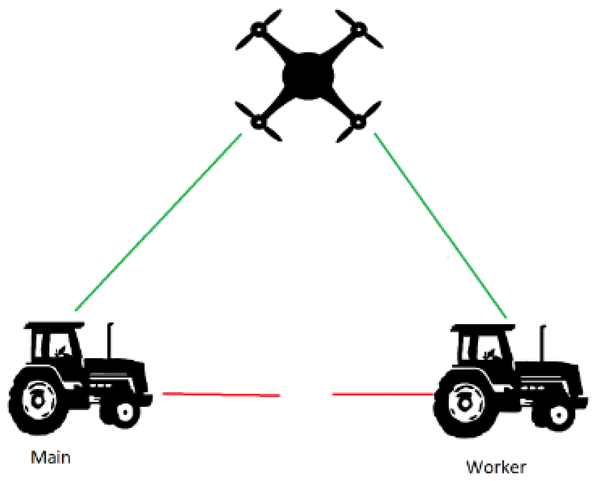
4. Cross technology CSMA scheduling for LoRa - IEEE 802.15.4g



- LoRa and IEEE 802.15.4g Wi-SUN networks.
- Enable communication by utilizing energy emissions.
- Collision avoidance based on the a communication.

Recommended skillset: C programming; Embedded Systems; Basic Computer Networking Principles

5. Relaying Active Connectivity with UAVs



- UAV and Launchpad radio with Contiki OS.
- When communication weakens, the UAV will act as a temporary relay to facilitate communication.

Recommended skillset; UAV; C programming; Computer Networks principles;

6. A Library for Remote Energy Measurements of IoT Devices in Python

- Python-based library development for remote energy measurements of IoT devices using the Keysight N670
- Demonstration based on the energy consumption of an IoT device, running various firmware, and printing the results in Python figures.

Recommended skillset: Solid Python programming skills; basic knowledge of electronic

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