Project Onderzoek

LoRa-communicatie

Project initialisatie

Oorzaak onderzoek & Business case

Team

Doelstellingen

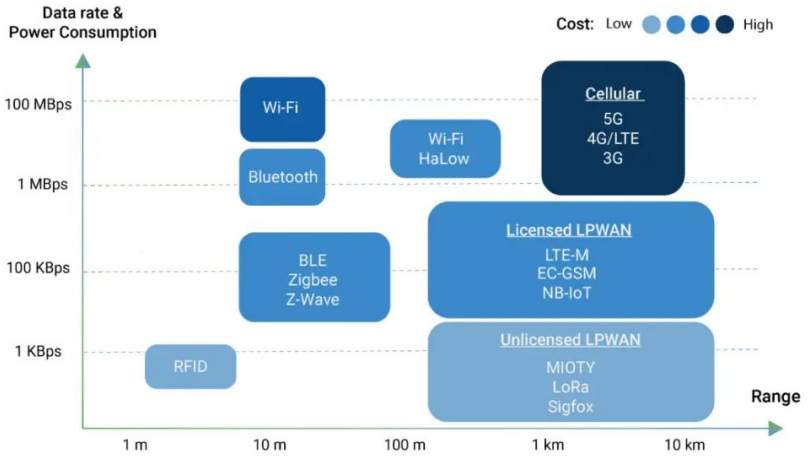
Projectomgeving

Oorzaak:

WiFi en Bluetooth hebben beperkt bereik

Veel projecten vereisen langeafstand communicatie

Energieverbruik & kosten moet laag blijven



Project initialisatie

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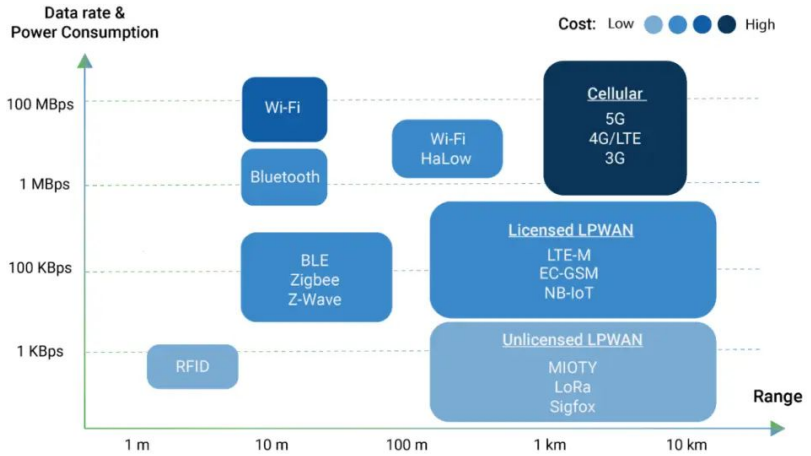
Oplossing:

LoRa = lage kost, groot bereik & laag energieverbruik

Praktische leerervaring met IoT & draadloze technologie



Project initialisatie

Oorzaak onderzoek &
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Doelstellingen

Projectomgeving

Naam	Expertises i.v.m. project
Milan Posman	Project Management, Bluetooth (ESP32-Android), Python, C++
Nick Driessen	Node-Red integration Creating sender using raspberry pico
Maxime Smit	Creating sender using ESP-32 Via visual code
Anish Pun	Coding (Micropython / C / C++) Node-Red integration & dashboard visualization
Bowen Liang	Coding (Micropython / C / C++) Node-Red integration & dashboard visualization
Lennert Engelen	Creating sender using Arduino-nano

Project initialisatie

Oorzaak onderzoek & Business case

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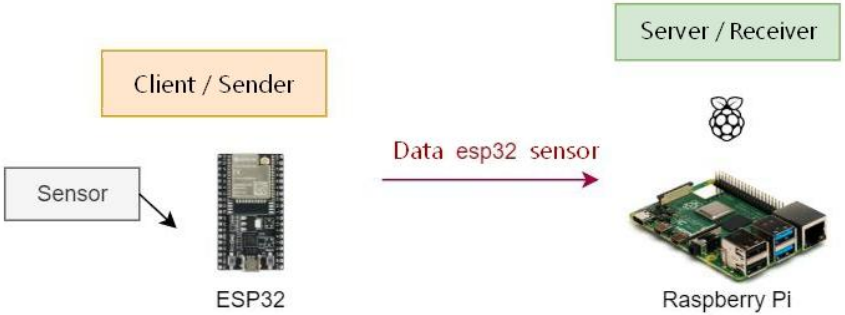
Doelstellingen

Projectomgeving



- ★ Sensoren meten
- ★ LoRa-data verzenden en ontvangen
- ★ Data visualiseren met Raspberry Pi
- ★ Bereik & stabiliteit testen
- ★ Resultaten presenteren

Project initialisatie

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Doelstellingen

Projectomgeving

Locatie: Corda Campus (klasomgeving) / thuis / …

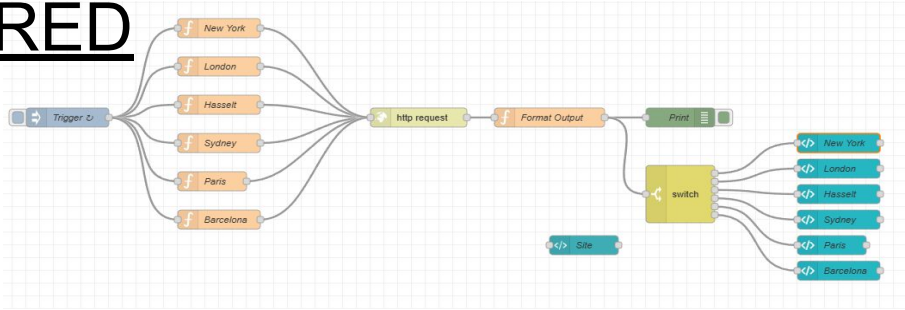
Beschikbare middelen:

- ★ ESP32, Raspberry Pi, LoRa-modules, Arduino-Nano, …
- ★ Arduino IDE & Node-RED
- ★ Begeleiding door leerkracht, …

Leerdoelen:

- ★ Samenwerken
- ★ Innovatief denken
- ★ Toepassing van IoT in praktijk

Project planning: Learning Node-RED



Receiver

Sender

Backlog

- ★ Current: Leren werken met Node-RED via een klein project.
- ★ To-Do: Data van sensoren integreren in Node-RED.
- ★ Future: Visualisatie maken van GPS-data & temperature sensor data op dashboard
- ★ Testing 1: API- data juist ophalen en verwerken.
- ★ Testing 2: Dashboard integreren.

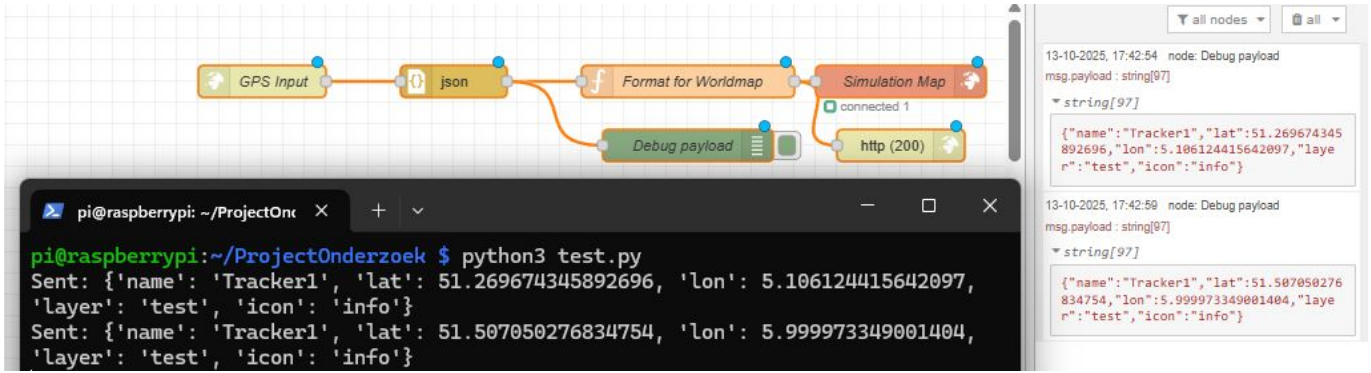
Project planning: Testing communication between 2 different Pi's

Receiver

Sender

Backlog

- ★ Current: Verschillende Pi's met elkaar laten communiceren.
- ★ To-Do: Lora-modules aansluiten op de Raspberry Pi's.
  Test code schrijven om data te verzenden en ontvangen via Lora.
- ★ Future: Integratie met IoT-platforms om data centraal te verzamelen en te visualiseren.
- ★ Testing 1: Communicatie tussen 2 verschillende Pi's via http

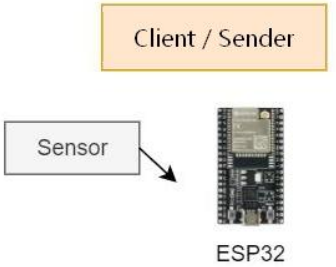


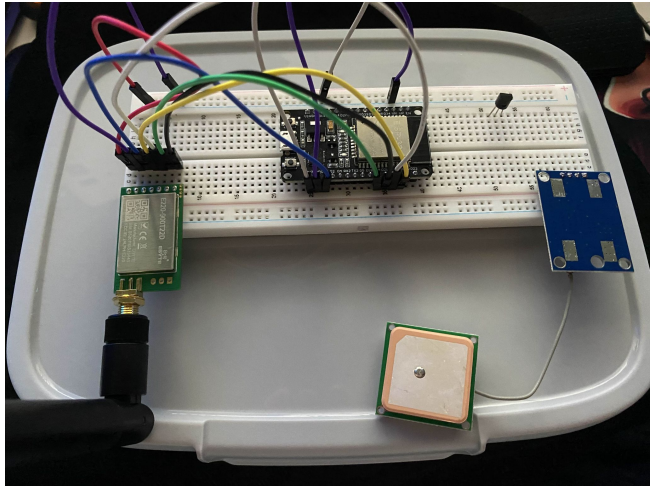
Project planning: Client Sender ESP 32

Receiver

Sender

Backlog





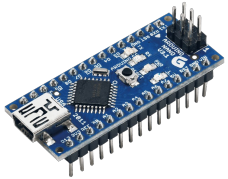
- ★ Current: Creating the code for LoRa connection via Visual Studio.
- ★ To-Do; Connecting the GPS and temperature
- ★ Future: Writing code for GPS and temperature.
- ★ Testing1: Distance of the Lora module.
- ★ Testing2: Precision of the GPS.

Project planning: client sender Arduino Nano

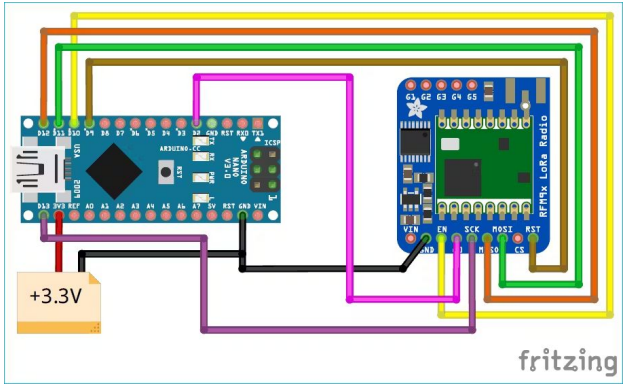
Receiver

Sender

Backlog



Nano



Bezig: LoRa library uittesten in de Arduino IDE.

To do:

- ★ Solderen + monteren LoRa RA02 Module
- ★ Solderen GPS module LoRa (NEO -7M)

Project planning: product + sprint backlog

Receiver

Sender

Backlog

TO DO (/product backlog)	DOING	DONE
Basis knowledge of Node-RED	Learning Node-Red	Made a weather app in Node-Red with data visualization
Basis LoRa module (Sender & Receiver)	Node-RED I²C screen	Bepaling & bestelling basiscomponenten
Inlezen temperatuursensor (Sender)		
Inlezen GPS-Module (Sender)		
Temperatuur (Receiver)		
GPS locatie (Receiver)		


END OF PRESENTATION
YAY
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