Applied IoT project
NOx

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AP.BE

Inhoud

- Project context
- Doelen
- Architectuur
- Hardware
- Software
- Huidige situatie
- Planning

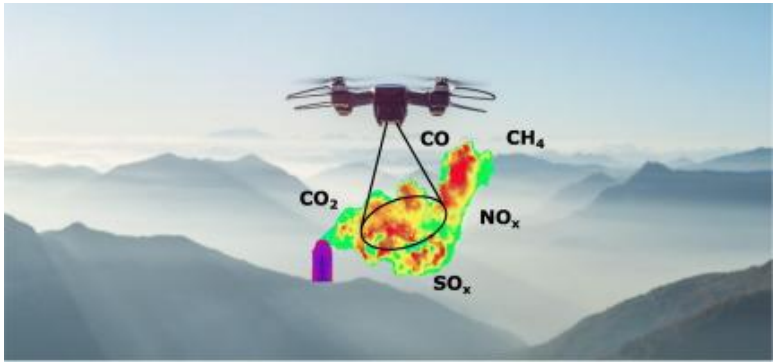
Project context

Project context

- Opdrachtgever
  - AP-Hogeschool
  - Applied IoT project
- Lectoren
  - Mnr. Luyts
  - Mnr. Van Merode
- Opleiding
  - Electronica-ICT IoT

Project context

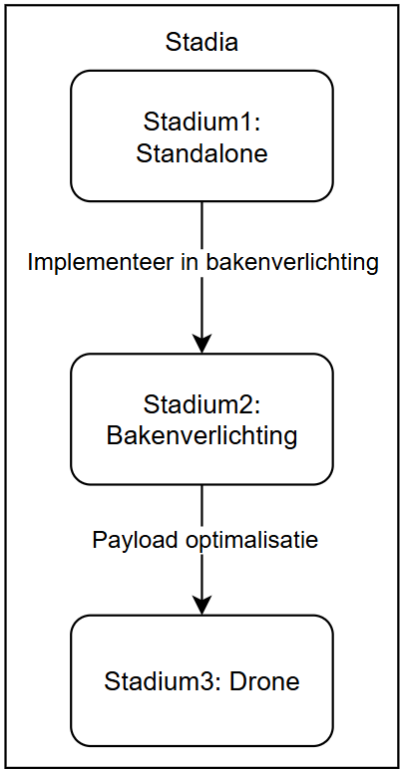
- Het project
  - Mobile meting
  - Data verzameling
  - GPS



Doelen

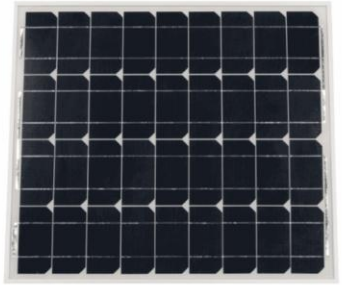
Doelen

- 3 project stadia
  1. Standalone
  2. Stationair (baken verlichting)
  3. Payload drone



Doelen - Standalone

- Stabiele werking
- Energie opslag/generatie
- AP terra integratie
- ESP32 integratie



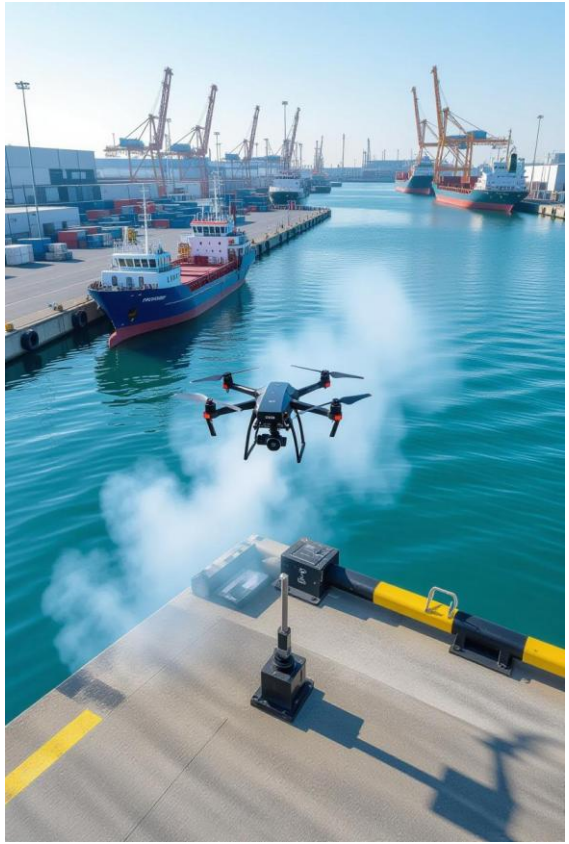
victron energy
BLUE POWER

Doelen - Stationair

- Weerbestendig
- Energie hervorming
- Stabiliteit testen
- Langetermijn test
- LoRaWAN communicatie

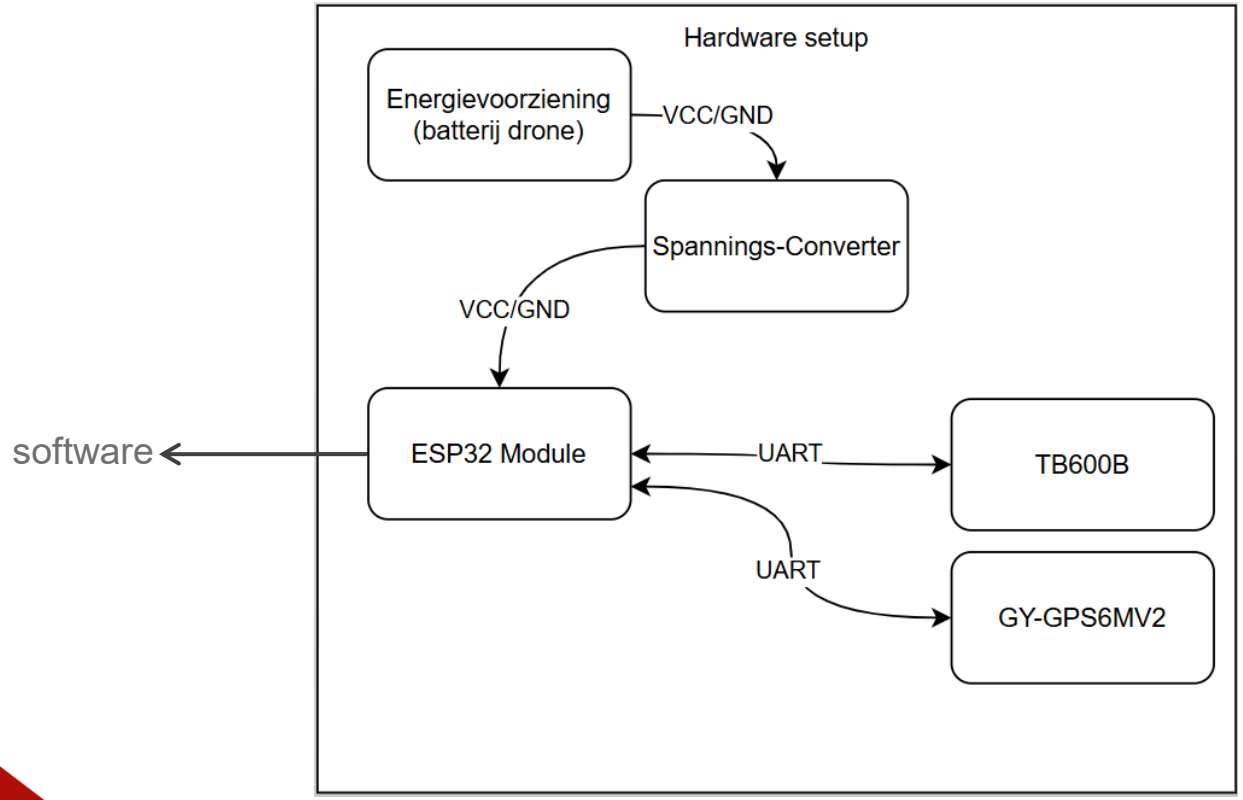
Doelen - Drone

- Payload ontwikkeling
- Drone communicatie
- Data opslag
- Data versturen

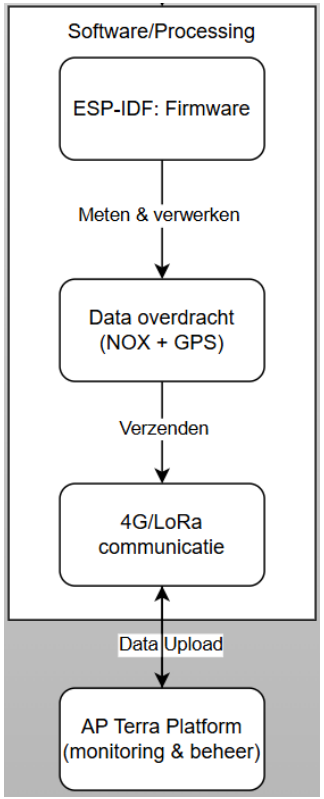


Architectuur

Architectuur



Architectuur



Hardware

Hardware

- FireBeetle
- ESP32

Hardware

- GY-GPS6MV2
- GPS-module
- Positie bepaling

Hardware

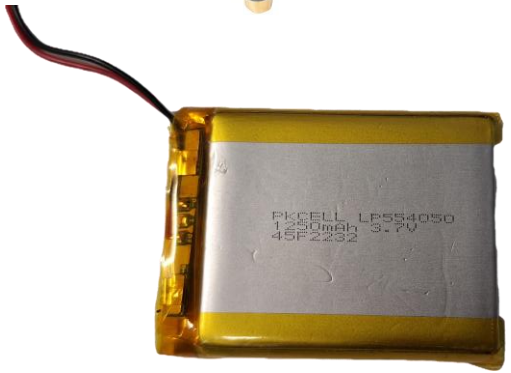
- TB600B
- Gas Sensor Module
- NOx-meting

Hardware

- SPM040201200
- Zonnepaneel
- 20W – 1,06A
- 18,5V

Hardware

- Solar Power manager
- Waveshare
- Lithium polymeer batterij



Software

Software

- ESP-IDF
- GitHub

Huidige situatie

Huidige situatie

- GY-GPS6MV2 integratie
- TB600B integratie
- Documentatie
- Planning

Planning

Planning

Taaknaam	Toegewezen aan	Startdatum	Einddatum	Bucket	Voortgang	Prioriteit
Week4: PCB bestellen + evaluatie	VW, V	–	10/10/2025	Deadlines	Not started	Medium
Week6: PCB bestellen	VW, V	–	24/10/2025	Deadlines	Not started	Medium
Week8: PCB bestellen + evaluatie	VW, V	–	21/11/2025	Deadlines	Not started	Medium
Evaluatie	VW, V	–	12/12/2025	Deadlines	Not started	Medium
Hardware blokdiagram	–	–	–	Voltooid	✅ Completed	Medium
GPS + esp32	–	–	10/10/2025	Bezig	Not started	Medium
Gassensor + esp32	–	–	16/10/2025	Taken	Not started	Medium
Documentatie	–	–	–	Bezig	Not started	Medium
GitHub opzetten	–	–	–	Voltooid	✅ Completed	Medium
GitHub onderhouden	–	–	–	Bezig	Not started	Medium

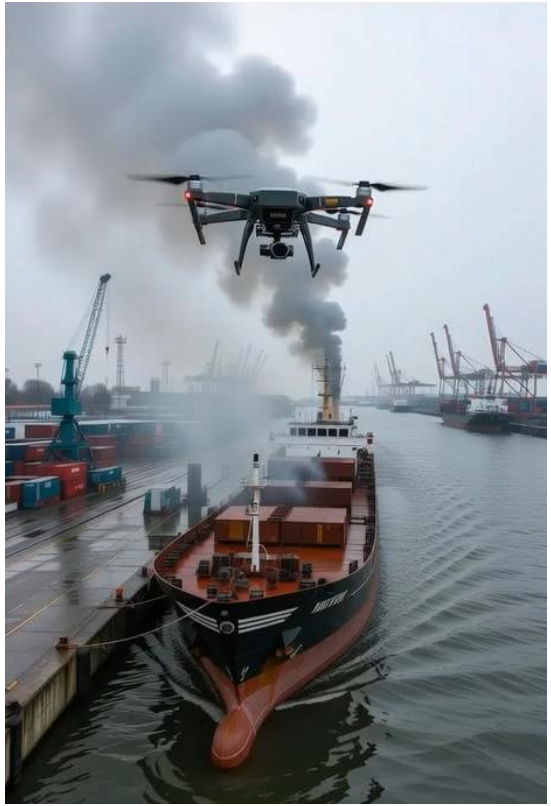
Planning

Taaknaam	Toegewezen aan	Startdatum	Einddatum	Bucket	Voortgang	Prioriteit
Implementatie ESP32 Firebase	–	10/10/2025	10/10/2025	Bezig	Not started	Medium
Stationaire oplossing (baken)	–	–	31/10/2025	Taken	Not started	Medium
Mobiele oplossing drone	–	–	20/11/2025	Taken	Not started	Medium
Data logging	–	–	09/10/2025	Taken	Not started	Medium
Batterij- en power management	–	–	31/10/2025	Taken	Not started	Medium
Behuizing en mounting	–	–	31/10/2025	Taken	Not started	Medium
Data opslag	–	–	23/10/2025	Taken	Not started	Medium
Draadloze communicatie	–	–	17/10/2025	Taken	Not started	Medium
Data visualisatie	–	–	17/10/2025	Taken	Not started	Medium
Veiligheidscheck	–	–	–	Taken	Not started	Medium

Planning

Taaknaam	Toegewezen aan	Startdatum	Einddatum	Bucket	Voortgang	Prioriteit
AP Terra integratie	–	–	17/10/2025	Taken	Not started	Medium
Testplan opstellen	–	–	–	Taken	Not started	Medium
PCB design	–	–	24/10/2025	Taken	Not started	Medium
Energievoorziening evalueren	–	–	–	Taken	Not started	Medium
NoX kalibratie	–	–	20/11/2025	Taken	Not started	Medium
Drone payload ontwerp	–	–	31/10/2025	Taken	Not started	Medium
GY-GPS6MV2 integratie	–	–	10/10/2025	Bezig	Not started	Medium
TB600B integratie	–	–	10/10/2025	Bezig	Not started	Medium
Opzet ESP-IDF omgeving	VW, V	–	03/10/2025	Voltooid	✅ Completed	Medium

Bedankt voor jullie aandacht



Bronnen

- GY-GPS6MV2: https://electrocredible.com/arduino-gps-module-guide-gy-neo6mv2/
- TB600B integratie: https://ecsense.com/product/tb600b-tvoc-10-volatile-organic-compounds-gas-sensor-module/
- GitHub: https://github.com/Daanvdw2005/IOT_Nox_Project.git
- Grok images: https://grok.com/imagine
- Waveshare: https://www.waveshare.com/wiki/Solar_Power_Manager
- ESP-IDF: https://docs.espressif.com/projects/esp-idf/en/stable/esp32/get-started/index.html
- FireBeetle: https://www.dfrobot.com/product-1590.html?srsltid=AfmBOoq7fl8cxBeGkf2icbMRzAmMG_K-O18Vi1ITHdFX71TBr0gWCSSy