Thermal sensor drone

Course: Introducing project (1DT308)

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SUMMARY

Purpose

The vast property of a disposal processing plant or a recycling facility can be hard to monitor. A fire can be devastating so if heat generation can be detected in an early stage, the risk of injuries and damage on environment can be minimized.

Project goal

Develop an airbourne product that periodically measures surface temperature to detect anomalis and report them via wireless network for further processing.

Primarily solution

Connect a thermal sensor to a micro-controller to assemble and evaluate measuring values. The unit is attached- and powered by a drone that should be programmed to fly on a pre-defined route. Meanwhile data is transmitted to a MQTT broker via LoRA and visualized in a dashboard. The micro-controller shall monitor voltage level in the drone to detect low power supply.

Evolution possibilites

- Track geo-position to record were the anomali is.
- Automated flying and route scheme.
- Connect drone to weather service to prevent flying in bad weather.

Time schedule

W.48 - Project plan, setup Git repository, requirements/issues/kanban, material orders
W.49 - Material orders, micro-controller setup with sensors, documentation
W.50 - Connect to LoRA and MQTT broker, attach device to drone, documentation
W.51 - Deployment and testing basic solution, assemble documentation, evolution development
W.52 - Study pause
W.53 - Study pause
W.1 - Deployment and testing evolution development, assemble documentation, create movie
W.2 - Presentation

Grade ambition

With this project with an established need we aim for grade A/B.

BUDGET

Material

The drone is supplied by the project members.

Description	Units	Price/unit	Est. cost
Drone	1	0 kr	0 kr
Pycom LoPy4	1	0 kr	0 kr
Pycom Expansion Board 3.0	1	0 kr	0 kr
Antenna	1	0 kr	0 kr
AMG8833 8x8 Thermal Camera Sensor	1	600 kr	600 kr
Components for voltages measuring	1	10 kr	10 kr
USB cable	1	59 kr	59 kr
Enclosement	1	100 kr	100 kr
Enclosement drone mount	1	100 kr	100 kr
Impact protection for device	1	70 kr	70 kr
Summary			**939 kr**