2022 – Project 1

SignAll is a French company that has been manufacturing large luminous signage since 1962. They supply a large number of customers such as McDonald's, Burger King, La Poste, Orange, AXA, Crédit Agricole, Total, etc. to name a few.

Their existing products are not connected therefore users must be on-site to know if the signage is on, functional, or out of order. Also, users cannot switch the signage on/off remotely (even when the law requires them to switch it off at a given time, when the shop closes for instance).

When the owner of the brand on the signage is not the same as the owner of the place (think of a Burger Kind's restaurant for instance), the maintenance team from the brand does not know what is going on at the place where the signage is installed and must go on-site on a regular basis just to check if everything is working. This results in additional costs and damage to the brand when the signage if out of order for too long.
Lately, environmental concerns and cost of energy has increased the pressure on the manufacturer to produce more efficient solutions such as dimming the signage when it is getting dark or switch it off completely at a give time or when there is a shortage of electricity.

SignAll want you to invent a new product for them (code name: Appsolu) that will make their signage smart by being connected.

The main features are:

- Monitoring of the signage (on or off, failure, over-heating, etc.)
- Remote control of the signage (switch on/off, dim, etc.)
- Consumption reduction and compliance with environmental laws (switch off at given time, adjust intensity based on ambient lighting, etc.)

Technical stack:

- You will use the SeedStudio Wio-E5 Dev Kit, for Long Range Application hardware
- The radio protocol used is going to be LoRa
- You may use https://www.thethingsnetwork.org/ as a backend
- The code will be written in TinyGo (a subset of Go)

Additional hardware provided:

- Power supply
- Power Switch Control Board
- LEDs
- Ambient light sensor (photoresistor)
- Temperature sensor
- Inductive current sensor (high voltage)
- Current sensor (low voltage)