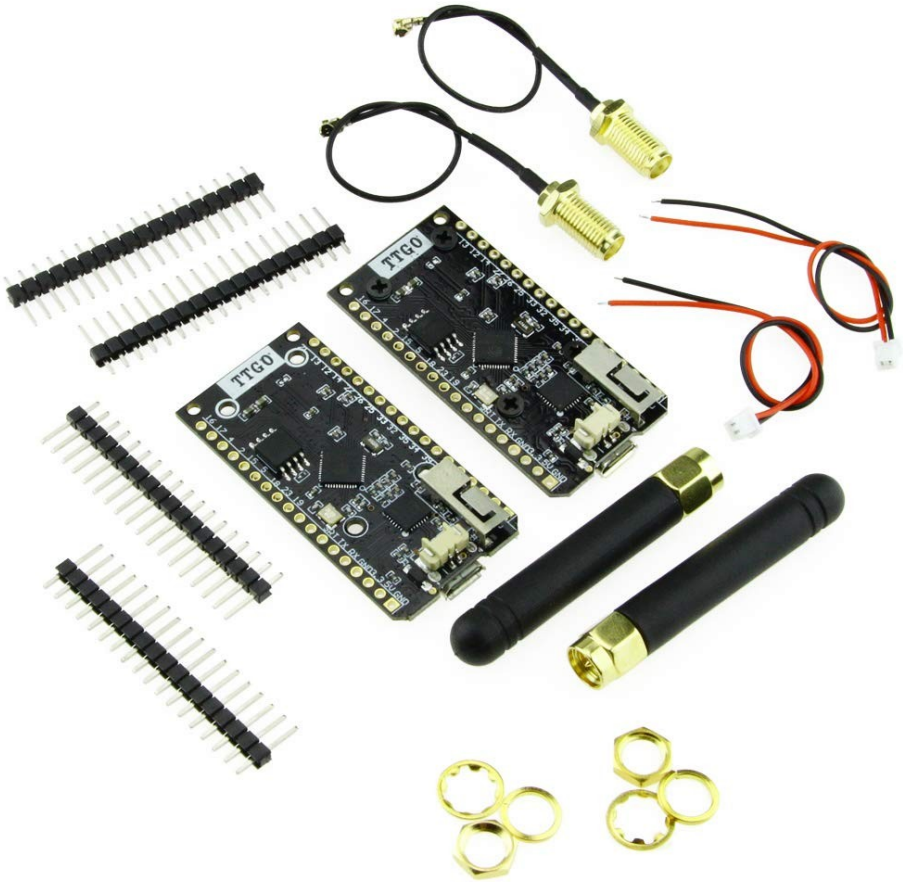


LoRa Gateway Drone

Projet CSF de Luca Orengo, Justin Diter, Denis Melikhov

Concept

- Une Gateway LoRa sert de base au concept d'IoT.
- Une Gateway montée sur un drone permet plusieurs choses.
- Ce drone fonctionnant de manière automatisé grâce à platforme possédant une recharge à induction.

esp32 TTGO LoRa Arduino

things4u / **ESP-1ch-Gateway-v5.0**

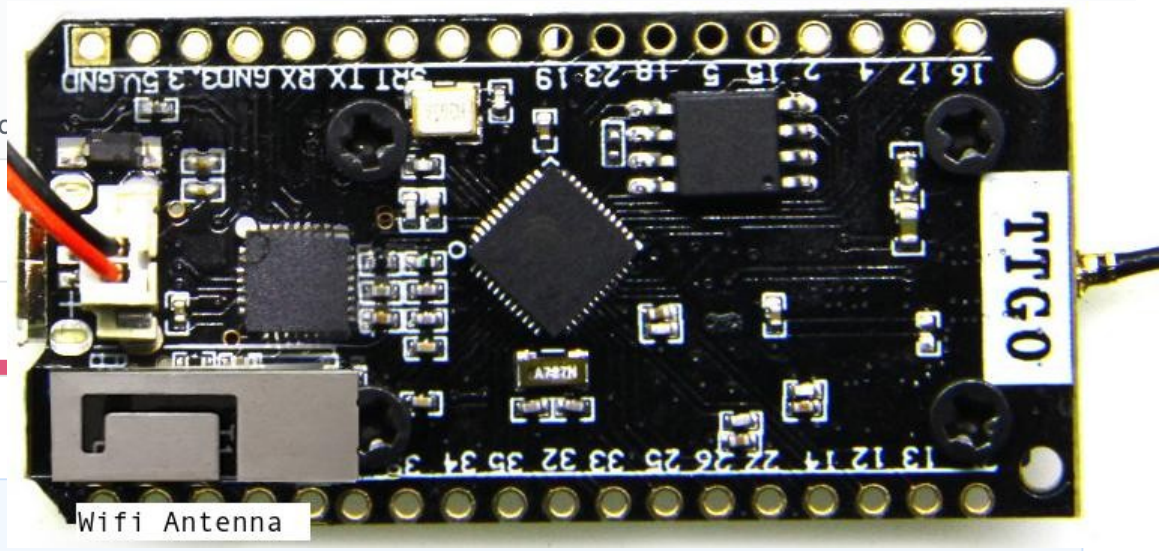
Code | Issues 17 | Pull requests 5 | Pro

Version 5 of Single Channel LoRa Gateway

35 commits | **1** branch

Branch: **master** | **New pull request**

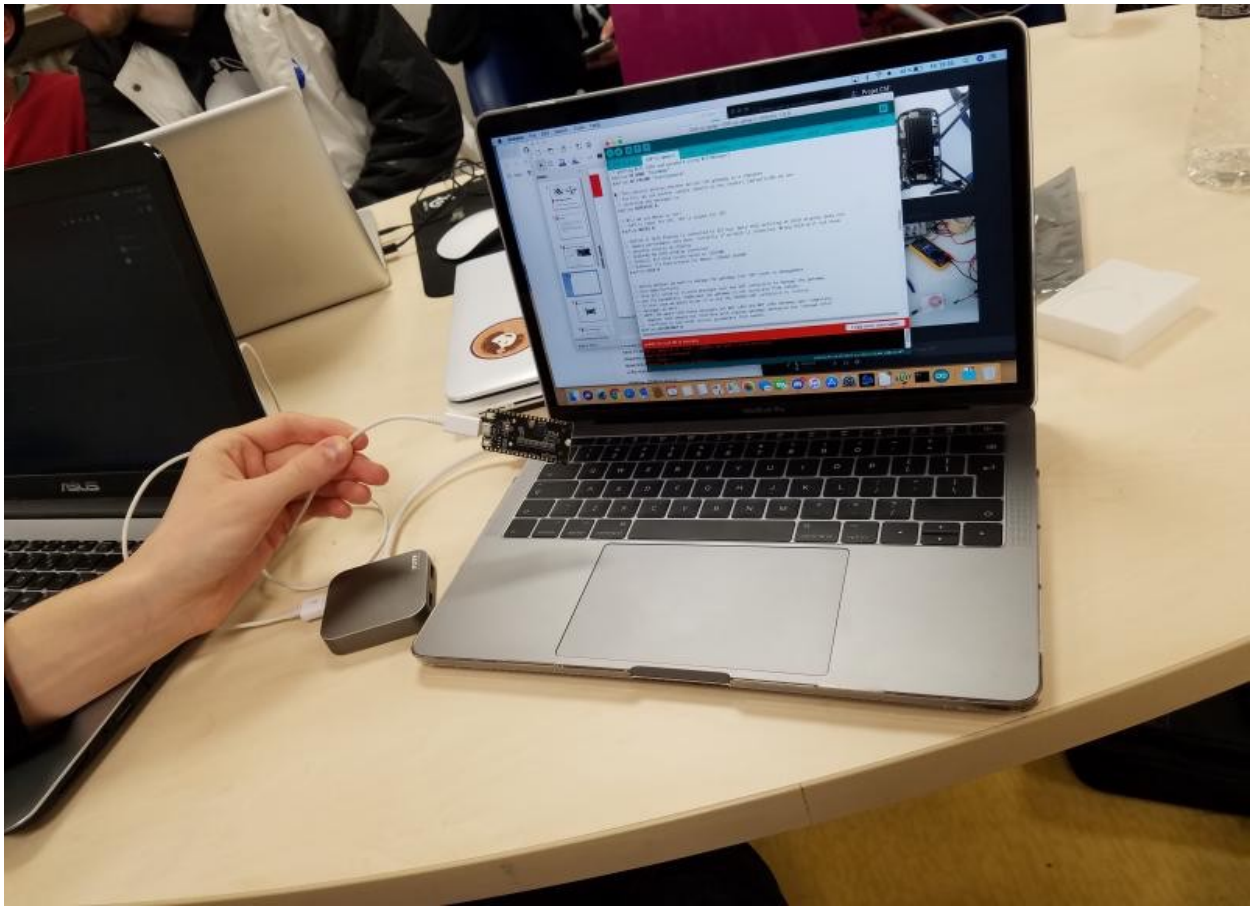
platenspeler Merge pull request #67 from miaoski/master ···



ESP-sc-gway	Merge pull request #67 from miaoski/master	17 days ago
libraries	Version 5.3.1; support for T_Beam ESP32, inclding ensor support for G...	10 months ago
.gitignore	no message	a year ago
CHANGELOG.md	Version 5.3.3; Several ahnhancement, confirm in GUI, button for docum...	8 months ago
LICENSE	Version 5.0.8; Update License for 2018	a year ago
README.md	Version 5.3.2; This version enabled _LOCALSERVER functionality: So wh...	9 months ago

README.md

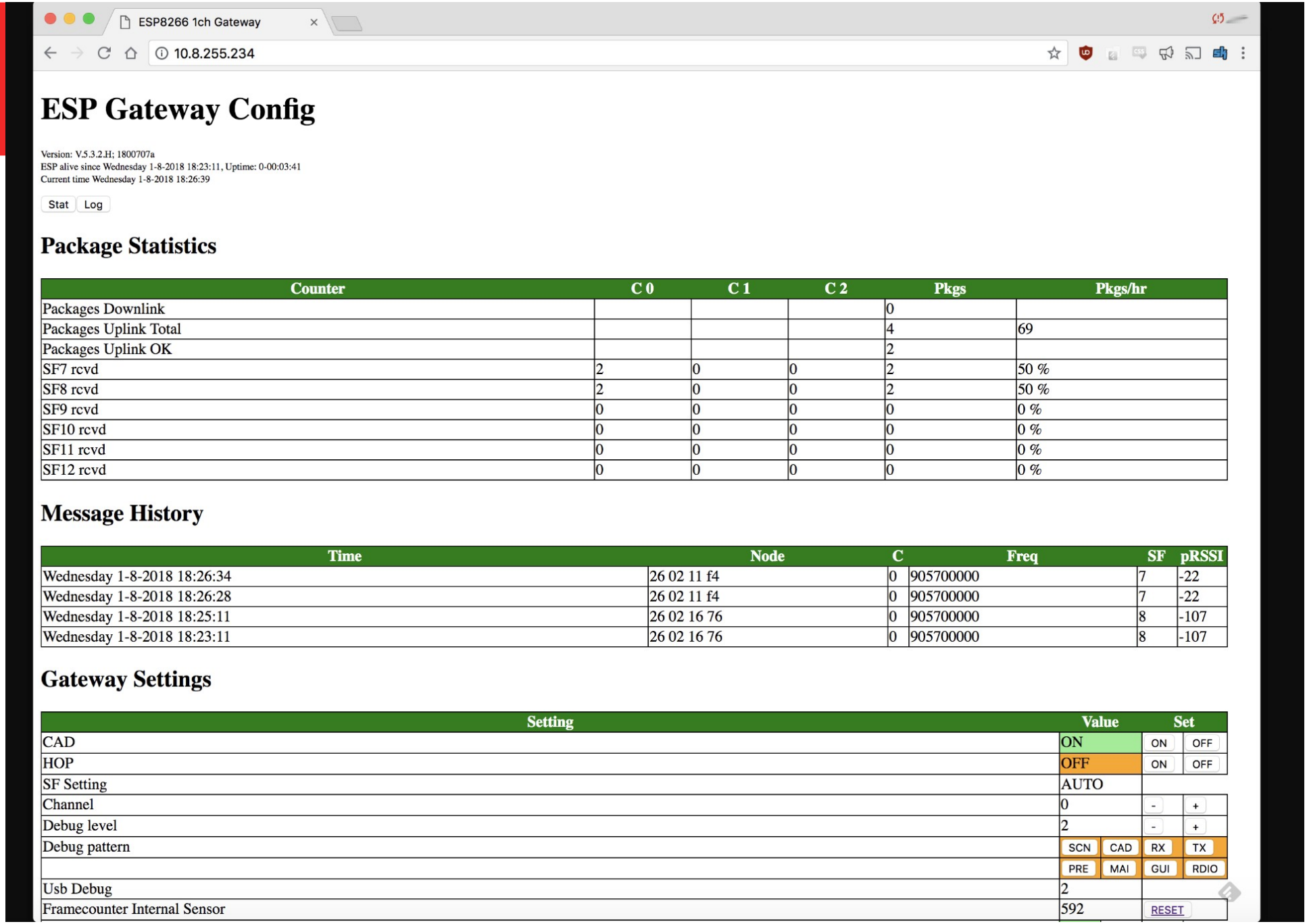
Single Channel LoRaWAN Gateway



Envoyer

```
..
WlanConnect:: Not connected after all
WLAN retry=1 , stat=6
Error Wifi network connect
WlanConnect:: Init para 0
0:1:2. WiFi connect SSID=[redacted] pass=[redacted]
```

Défilement automatique | Afficher l'horodatage | Nouvelle ligne | 115200 baud | Effacer la sortie



ESP Gateway Config

Version: V.5.3.2.H; 1800707a
ESP alive since Wednesday 1-8-2018 18:23:11, Uptime: 0-00:03:41
Current time Wednesday 1-8-2018 18:26:39

Stat Log

Package Statistics

Counter	C 0	C 1	C 2	Pkgs	Pkgs/hr
Packages Downlink				0	
Packages Uplink Total				4	69
Packages Uplink OK				2	
SF7 rcvd	2	0	0	2	50 %
SF8 rcvd	2	0	0	2	50 %
SF9 rcvd	0	0	0	0	0 %
SF10 rcvd	0	0	0	0	0 %
SF11 rcvd	0	0	0	0	0 %
SF12 rcvd	0	0	0	0	0 %

Message History

Time	Node	C	Freq	SF	pRSSI
Wednesday 1-8-2018 18:26:34	26 02 11 f4	0	905700000	7	-22
Wednesday 1-8-2018 18:26:28	26 02 11 f4	0	905700000	7	-22
Wednesday 1-8-2018 18:25:11	26 02 16 76	0	905700000	8	-107
Wednesday 1-8-2018 18:23:11	26 02 16 76	0	905700000	8	-107

Gateway Settings

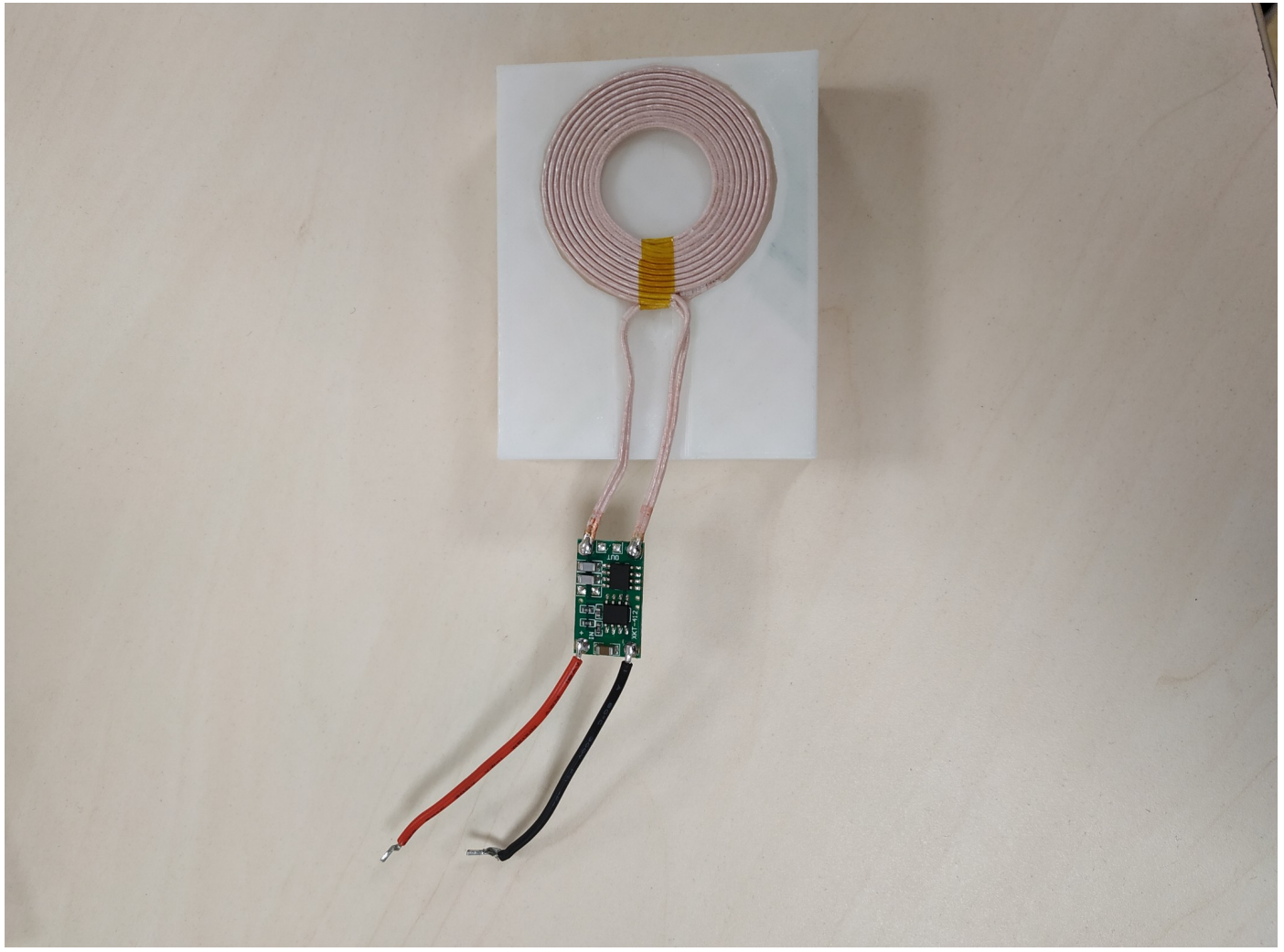
Setting	Value	Set
CAD	ON	ON OFF
HOP	OFF	ON OFF
SF Setting	AUTO	
Channel	0	- +
Debug level	2	- +
Debug pattern	SCN CAD	RX TX
	PRE MAI	GUI RDIO
Usb Debug	2	
Framecounter Internal Sensor	592	RESET

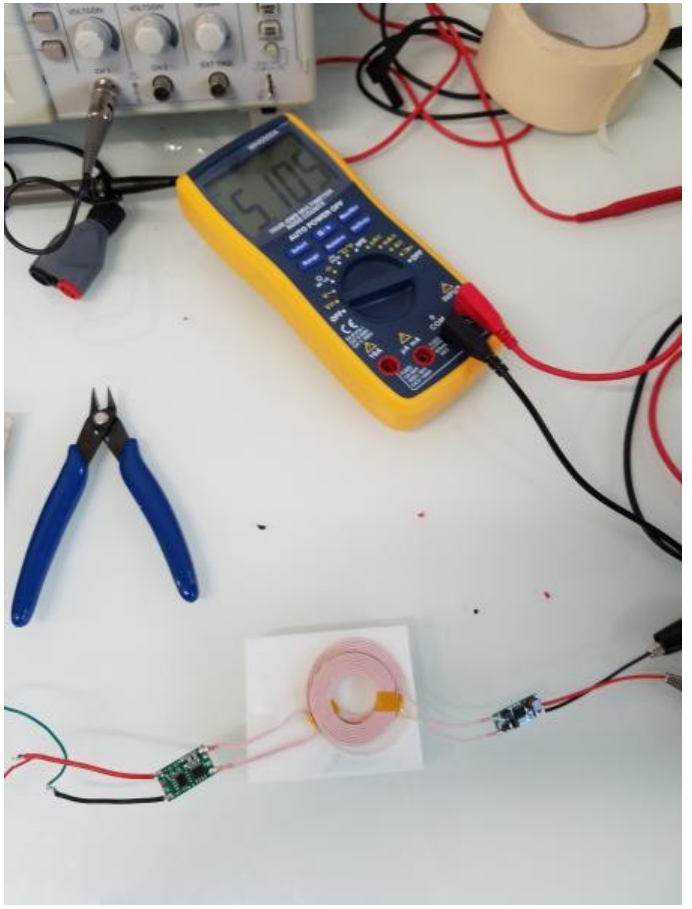
Drone – DJI TELLO EDU

Python and drone SDK

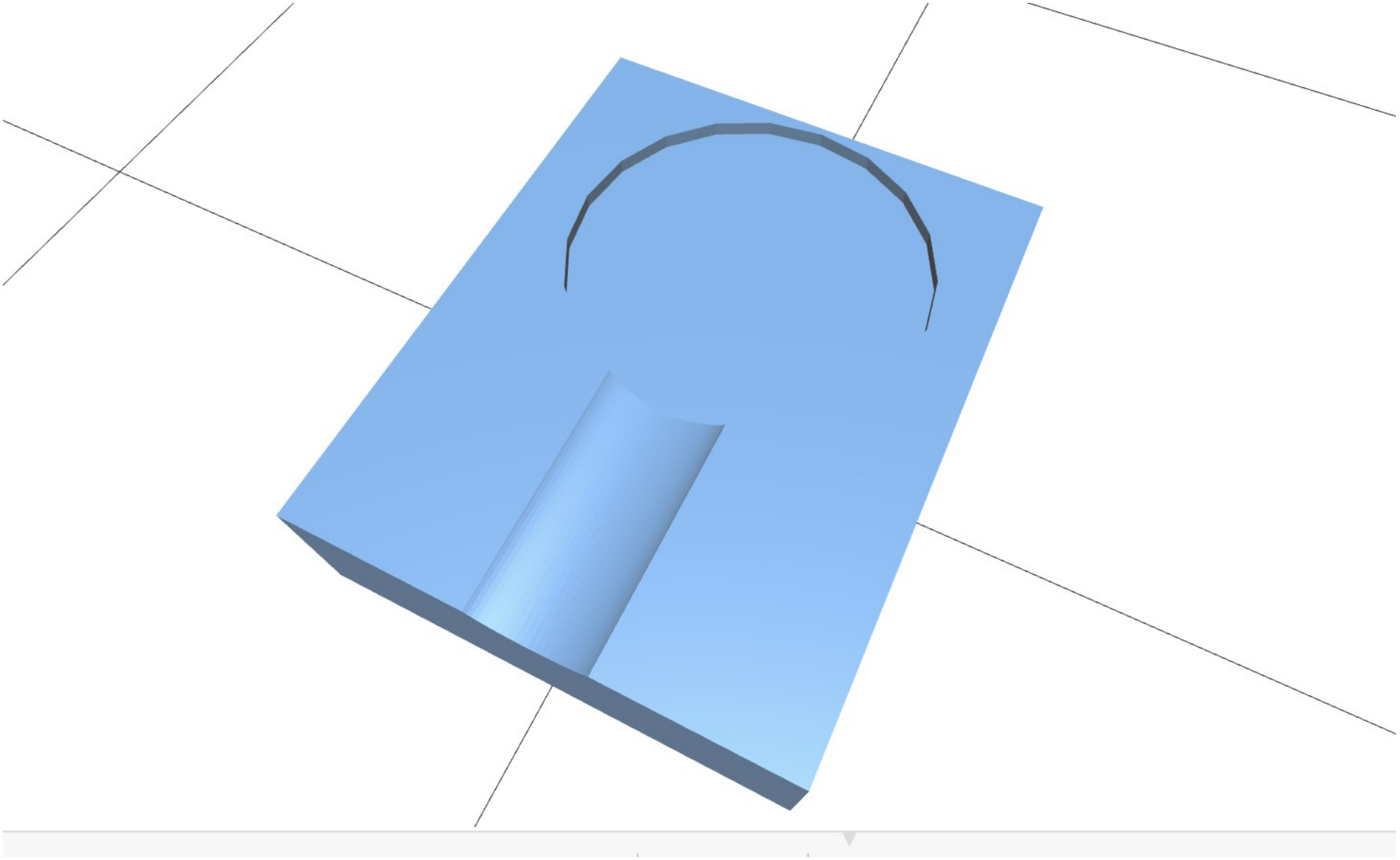
- Python → to communication between the computer and the drone using wifi
- The .txt file → to write the commands that you want to be used using the Tello SDK
- A computer terminal → executing the .txt file with the python code to communicate, it will send each command and receive all the information.

Induction Charger





Design



Inner Wiring

RoadBlocks

- Lack of documentation for the SX1276 ESP32 TTGO board
- Some limitations of the drone SDK
- Making a wireless charging coil / finding the perfect one online.
- Designing the perfect piece to use as a drone station.
- Inner Wiring.

Conclusion - Further in Depth

- Ce projet permet d’obtenir une borne LoRa automatisé et mobile.
- Drône plus puissant -> Gateway plus puissant.
- Socle de rechargement plus poussé.

Special Thanks to:

- Professor Fabien Ferrero
- Professor Jerome Lanteri
- L3 Student Jonathan Courtois
- M. Westenberg
- Hanker-lu

GitHub

- https://github.com/Mr0B/LoRa-Gateway-PiDrone