Redes de datos LPWA

RFC https://tools.ietf.org/wg/lpwan/
https://github.com/sftcd/lpwan-ov/blob/master/draft-farrell-lpwan-overview.txt lo otro es que deberia estar ak https://www.lora-alliance.org/what-is-lora al final de la pagina dice que mande un correo pa que se lo envien . . ..
https://docs.wixstatic.com/ugd/eccc1a_20fe760334f84a9788c5b11820281bd0.pdf es como un resumen muy completo los modulos chinos son OTAA y los sigfox ABP por eso se comportan diferente ak mas humano el RFC https://tools.ietf.org/id/draft-ietf-lpwan-overview-04.html

Sigfox

https://partner.sigfox.com/
https://backend.sigfox.com/device/2885103/messages
https://backend.sigfox.com/apidocs/event-callback?configSource=0
Workshop Sigfox

20170628_-_smt_bogota_workshop.pdf

LoRaWan

Explicación del protocolo → https://revspace.nl/DecodingLora

https://www.lora-alliance.org/technology

Fabricante chino RAK - Gateway RAK831
https://www.aliexpress.com/store/product/RAK831-LoRa-LoRaWAN-Gateway-Module-base-on-SX1301-433-868-915MHz-range-of-up-to-49200ft/2805180_32821411294.html?spm=2114.12010612.0.0.5bdadf47Uf6gic
http://www.rakwireless.com/en/WisKeyOSH/RAK831
https://github.com/RAKWireless/RAK831_LoRaGateway
http://docs.rakwireless.com/en/RAK831%20LoRa%20Gateway/Software%20Development/RAK831%20Datasheet%20V1.2.pdf
http://docs.rakwireless.com/en/RAK831%20LoRa%20Gateway/Software%20Development/RAK831%20Quick%20Start%20GuideV1.0.pdf
http://docs.rakwireless.com/en/RAK831%20LoRa%20Gateway/Application%20Notes/Getting%20started%20with%20the%20RAK%20831%20Lora%20Gateway%20and%20RPi3.pdf

Módulo que agrega GPS y la conexión con una raspberry como shield

Converter Board (Raspberry)

With Max-7Q GPS Module and GPS Antenna

Configuración

https://www.hackster.io/naresh-krish/getting-started-with-the-rak-831-lora-gateway-and-rpi3-e3351d
https://www.thethingsnetwork.org/labs/story/rak831-lora-gateway-from-package-to-online
https://www.thethingsnetwork.org/docs/gateways/troubleshooting/semtech-udp.html#logs
https://github.com/TheThingsNetwork/packet_forwarder/blob/master/docs/INSTALL_INSTRUCTIONS/IMST_RPI.md
http://docs.rakwireless.com/en/RAK831%20LoRa%20Gateway/Hardware%20Design/Raspberry%20Pi%20Switchboard%20SCH_20171218.PDF

$ git clone -b spi https://github.com/ttn-zh/ic880a-gateway.git ~/ic880a-gateway $ cd ~/ic880a-gateway $ sudo ./install.sh spi

https://www.thethingsnetwork.org/docs/gateways/packet-forwarder/semtech-udp.html
https://github.com/TheThingsNetwork/packet_forwarder/blob/master/docs/INSTALL_INSTRUCTIONS/IM

[ST_RPI.md](ST_RPI.md)

Conexión a raspberry pi 3

https://www.hackster.io/naresh-krish/getting-started-with-the-rak-831-lora-gateway-and-rpi3-e3351d

https://github.com/TheThingsNetwork/gateway-conf

RAK 831 Pin	Description on silk screen	RPi physical pin
	+5V	2
	GND	6
9	RST (Resent pin)	22
8	SCK (SPI Clock)	23
7	MISO	21
6	MOSI	19
5	CSN (Chip Select)	24

rpi v3 to rak 831 pin connection

Referentes

https://github.com/IRNAS/ttn-irnas-gw
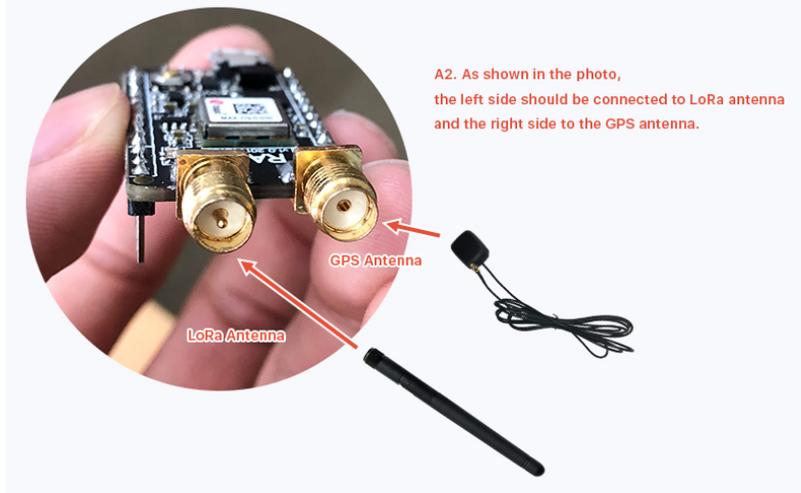https://github.com/worrajak/RAK831_LoRaGateway
https://github.com/kuanyili/rak831-gateway

Módulo RAK811

Q2. How should I connect the GPS antenna and LoRa antenna?

A2. As shown in the photo,
the left side should be connected to LoRa antenna
and the right side to the GPS antenna.

GPS Antenna

LoRa Antenna

http://wiki.rakwireless.com/doku.php?id=wisnode_series:wisnode-lora&s[]=rak811
http://wiki.rakwireless.com/lib/exe/fetch.php?media=rak811_lora_at_command_v1.2.pdf
http://wiki.rakwireless.com/lib/exe/fetch.php?media=wisnode-lora_evb_quick_start_guide.pdf

RAKTracker programming with platformio https://github.com/jcaridadhdez/RAK811-tracker/wiki
https://github.com/sabas1080/RAK811WithCoreArduino
https://github.com/SVTSolder/RAK811-AT-Arduino
https://github.com/jcaridadhdez/RAK811-tracker
https://github.com/Ebiroll/RAK811_BreakBoard

Compilando herramientas del repositorio https://github.com/RAKWireless/RAK831_LoRaGateway

en archlinux instalar libftdi_compat
+#include <sys/types.h> –>
https://www.linuxquestions.org/questions/slackware-14/what-include-am-i-missing-for-types-like-u_int8_t-4175454407/
PATH_MAX –>
https://stackoverflow.com/questions/9449241/where-is-path-max-defined-in-linux#9449307

Lora con RF96 y esp8266

Dragino https://encrypted.google.com/search?hl=es&q=dragino %2B esp8266
https://www.youtube.com/watch?v=hMOwbNUpDQA&list=PL3XBzmAj53Rkkogh-lti58h_GkhzU1n7U
https://github.com/hallard/NodeMCU-Gateway
https://www.thethingsnetwork.org/forum/t/single-channel-gateway-part-1/798/339
https://github.com/squix78/esp8266-oled-ssd1306
https://github.com/things4u/ESP-1ch-Gateway-v2.0
https://github.com/things4u/ESP-1ch-Gateway-v3.0
https://github.com/JaapBraam/LoRaWanGateway
http://www.hoperf.com/upload/docs/rf/AN2003-LoRa%20communication%20example.pdf

LoRa Server

https://www.loraserver.io/
http://piratas.cu.cc/doku.php?id=iot:lorawan:server

https://github.com/ttn-zh/packet_forwarder

RN2903

http://blog.trifork.com/2016/03/04/from-the-trenches-lora-lorawan-with-the-lorabee/
http://ww1.microchip.com/downloads/en/DeviceDoc/40001784B.pdf
https://github.com/alinmechenici/LoRa-projects
https://github.com/HF0/LoRaWAN-for-Arduino-RN2483
https://www.thethingsnetwork.org/labs/

- sys get ver
- radio set freq 903000000 a 928000000
- radio get freq
- radio set pwr 14
- mac pause
- radio tx <a random number>
- radio rx 0

Amplificadores de bajo ruido

http://lna4all.blogspot.com.co/

Otras aplicaciones

https://ukhas.org.uk/guides:ssdv
http://www.timzaman.nl/?page_id=1106
https://www.youtube.com/watch?v=BfugrVBCA98
https://www.rtl-sdr.com/creating-a-fsk-video-data-system-for-high-altitude-balloons/

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