Spoof1090

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Spoof 1090 is a ADS-B transmitter specifically designed for GNU Radio implementations.

Description

Spoof 1090 is composed by two sub-modules:

- the ADS-B encoder: a C++ tool aimed at providing the ADS-B payload based on the state of the aircraft (i.e., ICAO name, position);
- the ADS-B modulator: a GNU Radio block aimed at providing the modulated burst to be transmitted.

Getting Started

Dependencies

The following procedure has been tested on Ubuntu 22.04.2, but it can work on other linux distributions with modifications of dependencies.

- gnuradio
- gnuradio-dev
- cmake
- libspdlog-dev
- clang-format

Installing

In order to install the GNU Radio OOT module run the following commands:

```
$ mkdir build
$ cd build
$ cmake ../
$ make
$ sudo make install
```

In `examples/ads_b_gateway` you can find a simple ADS-B encoder code; it can be compiled running the following commands:

```
$ g++ -c *.cpp
$ g++ *.o -o ads_b_gateway -lgnuradio-pmt -lzmq
```

Acknowledgments

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If you find this project useful for your research, please considering cite this tool as:

G. Gelli, I. Iudice and D. Pascarella, "A cloud-assisted ADS-B network for UAVs based on SDR," *2022 IEEE 9th International Workshop on Metrology for AeroSpace (MetroAeroSpace)*, Pisa, Italy, 2022, pp. 7-12, doi: 10.1109/MetroAeroSpace54187.2022.9856398.

You can find the bibtex code below:

```
@INPROCEEDINGS{9856398,
  author={Gelli, Giacinto and Iudice, Ivan and Pascarella, Domenico},
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