Project Vivaldi

Stocco Matis 5BI

A.S.L. 2018/2019

Bluewind

Bluewind, an independent engineering company, provides innovative product design solutions in the fields of Electronics, Energy Efficiency, and Connected Devices.

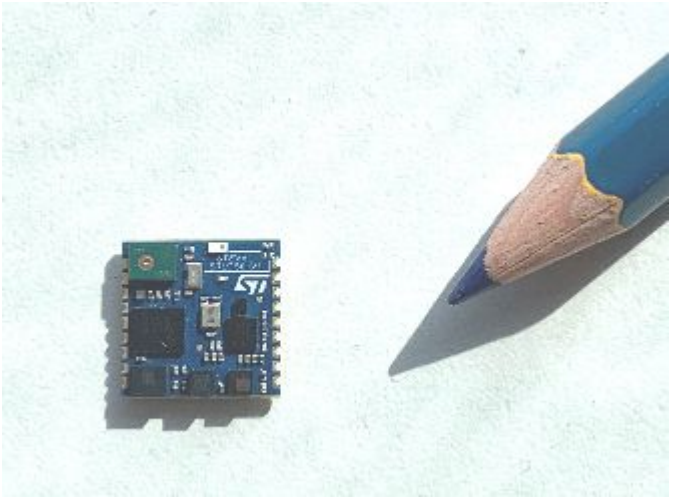
- System Modelling
- Firmware, IoT, Platform
- Real Time Operating Systems
- Embedded Electronic Systems

Vivaldi Sound Recognition

The aim of the Vivaldi for ITS is to collect real time statistics about urban traffic by counting the number of cars passing by.

The Vivaldi platform perform three steps : audio acquisition, audio pre-processing for feature extraction, and classification with a pre-trained network.

Furthermore, it shares the results via serial interface and via bluetooth.



Audio acquisition

We created a dataset from live captured vehicles sound, sorted with a fast and intuitive interface.

Audio was recorded through SensorTile module that supports raw data streaming via USB, data logging on SDCard, audio acquisition and audio streaming.

Audio processing

Therefore audio is preprocessed to extract an MFCCs (Mel-frequency Cepstral Coefficients) matrix, which stands as input to the classification algorithm.

What i learned

Work with rules, timing, cooperation and relations.

Use of Linux, Git, Python3, C

Conclusion

Thanks to this experience i have consolidated the ability to work in a team, the analysis of the project and the problem-solving methodology. I have learned to relate to managers and employees of a company and i have entered the perspective of working in a real office.

The project assigned was innovative and attractive in many aspects.

Thank you for your attention.

Now I am happy to answer any questions you might have.