



3D AEROSPACE

3D/2020/INT/001 Internship Opportunity

GNSS Radio Frequency Receiver Design



Company

3D Aerospace (www.3daerospace.eu) is an European young start-up established in June 2018. 3D Aerospace is located at Albi (France) in the incubator of the Ecole des Mines. 3D Aerospace has received several funding (local, national and European) in order to manufacture and test its first prototypes by Summer 2020. The company is developing an innovative new generation of GNSS (GPS / Galileo) receiver targeting Industry V4.0 applications.

The company is based on equality gender, positive working atmosphere, hard work transparent communication and continuous improvement. 3D Aerospace proposes a safe environment to make innovation happens. As a high technology company, failure is perceived as an opportunity to learn and improve and is accepted as long as a rigorous and structured work is applied.



Internship

During the period of the internship, the intern will have the opportunity and responsibility to work on three main topics:

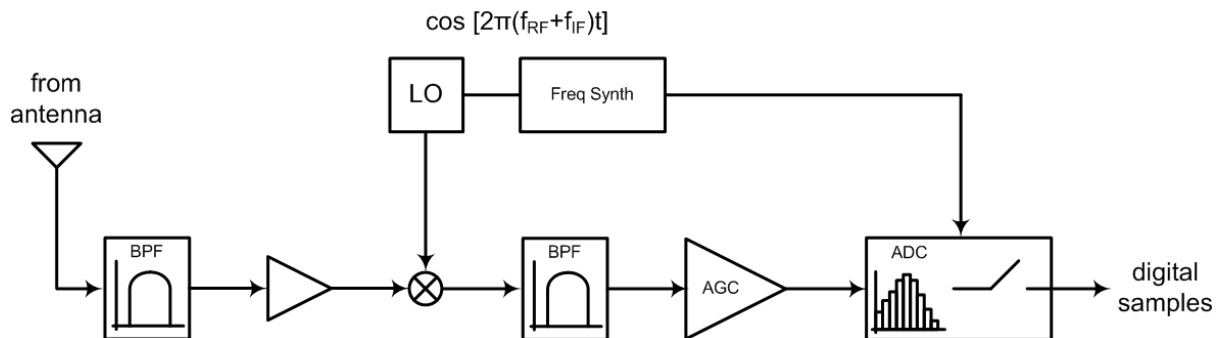
- 1. Design, manufacturing and validation of the RF Front-end of the GNSS receiver (1st priority)***

GNSS signals are transmitted by GNSS satellites in the L-band frequency (1.1 – 1.6GHz). Down Conversion, filtering, amplification and conversion from analogue to digital signals are required in order to post-process the signals. Hence, during this internship, the intern will have the opportunity to design, manufacture and test the GNSS receiver's front end. The work



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will consist in: Performing a literature review, developing a theoretical model using Matlab and / or Simulink, developing a mock-up model and validating the model through tests.



2. Design, manufacturing and validation of the GNSS receiver Printed Circuit Board (2nd priority)

In parallel to the design of the front-end, the intern will also be involved of the design and manufacturing of the overall PCB of the receiver. A first mock-up will be performed based on generic PCB. Industrial drawing and a Bill Of Material (BOM) will be created using SolidWorks Altium. Finally, the intern will participate at the industrialisation of the first PCBs.

3. Design, manufacturing and validation of the electrical system (battery & solar cells) (3rd priority)

Finally, the intern will also be involved in the energy harvest and storage design system of the GNSS receiver which is made of lithium ion batteries and solar cells. Following the development of a theoretical model, the intern will have the opportunity to implement practically his or her design using already procured hardware. The objective of this task is to optimise the lifetime of the receiver without having the need of being plugged in.



Additional Information

Location: 20 Chemin de la Teuliere, Albi, 81000 France

Internship Duration : 6 months starting from February / March to End of August 2020.

Working Language: English

Internship allowance: 575.50€ per calendar month



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Working conditions: 3D Aerospace is a small team of passionate and hard worker people. Our small size is actually one of our man strengths as it provides agility, flexibility and a sense of family-size company. Our organisation is based on daily scrums and monthly milestones review.

Application process: One case study to prepare offline and an one to one interview with 3D Aerospace core team.