3D AEROSPACE

INTERSHIP OPPORTUNITY

GNSS

COMPANY

3D Aerospace (www.3daerospace.eu) is an European young start-up established in June 2018. We are located at Toulouse (France) in Montaudran and are developing an innovative new generation of GNSS (GPS / Galileo) mapping receiver.

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

3D Aerospace is currently developing two brands, DeVines and GaliGo. DeVines is part of the precision viticulture market, which brings together all the technological innovations related to viticulture. With DeVines, we offer an all-in-one solution, which combines several services in a single tool. GaliGo, our second brand under development, is part of the connected cities market. GaliGo offers a real-time updated traffic mapping solution and delivery network optimization.

YOUR ROLE

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

1. GNSS requirements of the receiver

3D Aerospace platform is made of an accurate GPS receiver (submetric accuracy) and an array of cameras working in visible and infrared wavelengths. The GNSS antenna is capable of capturing the three Galileo frequencies (E5, E6 and E1) as well as L1 and L5 GPS signals. During this first part of the internship, you will have to:

- Review the GNSS subsystem requirements based on the system requirements.
- Be familiar with the existing work performed in the development of the PVT engine.
- Perform a literature on the GNSS signal structures (carrier, subcarrier, navigation message), GNSS SDR, PVT (mono-frequency and dual frequency).
- Familiarize him/herself with a Development board (e.g.: Zedboard) and C++.

2. Development of a real time dual-frequency PVT engine in static/dynamic environment

The purposes of this second task are:

- To translate existing Simulink models into C++ code
- Document the code
- Propose, and if time allows implement, an innovative and feasible method that will separate the algorithms into the FPGA and the CPU to obtain a fast and real-time PVT Engine

Additional features such as enhanced acquisition and tracking loops, PRN acquisition and tracking strategy, memory allocation, coupling with additional sensors (IMU and/or cameras) could also be envisaged depending on your progress.

3. Support to the embedded software team

Finally, you will support the embedded software team in implementing the developed algorithm (the PVT engine) into 3D Aerospace SDR (FPGA). You will have the opportunity to take part of test campaigns.

ADDITIONAL INFORMATION

Location: 3 Avenue Didier Daurat, 31400 Toulouse, France

Internship Duration : 6 months starting from February / March to End of August / September 2022.

Working Language: English

Internship allowance: about 575.50€ per calendar month (3.90€ per hour)

Contact email address: contact@3daerospace.eu

Working conditions: 3D Aerospace is a small team of passionate and hard worker people. Our small size is actually one of our main 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.

Follow-on possibility: Following the completion of the internship and based on satisfactory results during the internship you could be offered job opportunity at the company.