3D/2020/INT/003 Internship Opportunity

Development of Real- time embedded system for a new generation of IoT GPS receiver

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. ***Theoretical design of the vision subsystem.***

3D Aerospace platform is made of an accurate GPS receiver (submetric accuracy), an array of cameras and wireless connectivity. During this first part of the internship, the intern will have to get familiar with the current design of the IoT device by:

- Reviewing and consolidating the system and subsystem requirements.
- Developing development and validation strategy plans.

- Establishing the embedded software needs from other engineering colleagues

2. ***Development of VHDL code for the receiver's preliminary blocks***

The IoT GPS receiver could be split into several fundamental blocks, namely: the GPS block, the vision block, the memory allocation block, the power management block, the connectivity block. Existing GPS algorithms and vision algorithms have been already developed in the Matlab environment. During this second phase of the internship, the objectives of the intern will be to

- Understand and assess the developed algorithm
- Adapt it for real-time implementation
- Implement into the FPGA
- Verify and Validate the implementation of the code at block level.

3. ***Development of the system architecture and code***

Finally, the intern will also be involved in the development and implementation of the overall system architecture which will link all the blocks developed during the second part of the internship. The aim is to test a version alpha of the complete receiver system by end of the internship.

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

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 man strengths as it is 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.