Autonomous Navigation and Flight Termination System for small launch vehicles

Code: 21/33

Company: B2Space

Location: Newport, South Wales + Remote working

Company Description:

B2Space is a UK start-up, based in Wales, with the mission of making space affordable for more companies and organisations. Our main goal is to be the first UK private company to launch small satellites to LEO from UK.

For that, we are developing a high-altitude launching system based on the rockoon concept. Currently we are performing a proof-of-concept project, which will see B2Space launch a small version of its system that will reach 100km of altitude, before the end of Q2 2021.

In parallel, making use of the stratospheric expertise acquired, B2Space has developed, in partnership with ESA BIC UK, a near space test bench, that gives companies and research institutions an unrivalled opportunity to test their technologies in conditions similar to the ones they will face in orbit.

Additionally, B2Space is also developing HAPS systems (High Altitude Pseudo Satellites) that will be used for several purposes (surveillance, Earth Observation).

Having received funding from the Welsh Government, ESA, UKSA, STFC, HIE, and having raised as well substantial private investment, B2Space is quickly growing and looking forward to welcome new team members.

Project Description:

The selected candidate, working with B2Space engineering team, will work on the analysis and design of an Autonomous Inertial Navigation and Flight Termination System (AFT system) for B2Space small launch vehicle “Colibri”.

The work will consist on analysing the technical and regulatory requirements that the AFT system will have to meet considering current and future regulations (SIA, FAA) , and implement those on a design concept, working towards defining the system architecture of the complete system.

The candidate will investigate the most suitable components (Inertial sensors, MCUs, communications systems, safety management systems) and work with B2Space

multifunctional team to develop the configuration and architecture of a proof of concept / prototype of the AFT system.

A desired outcome of the project will be a demonstrator to be implemented on a small sounding rocket to prove the concept and main functionalities of the AFT system.

Applicant Specification:

An open-minded 3rd/4th year undergraduate or PhD student in Engineering, Physics, or Maths.

We are looking for a candidate which is passionate and enthusiast about the space sector, pro-active, and with the ability to work both in highly agile teams, and independently and remotely when required.

Technically, understanding of space or aerospace systems and missions, knowledge of electronics, systems engineering and programming languages.

Minimum Requirements:

- 3rd/4th year undergraduate or PhD student in Engineering, Physics, or Maths
- Background knowledge on the challenges associated with spaceflight
- Willingness to approach an open problem where there is no single right answer

Preferred Additional Requirements:

- Programming experience (preferably MATLAB)
- Be able to deal with and learn from mistakes to grow and develop an idea

Further details:

8 weeks minimum fixed term contract to be agreed with successful candidate. Virtual Induction Event to be held on 21 June, 2021. Ideally to complete before the start of the next academic year. Salary is £1,250.00 per calendar month gross.

Closing Date for Applications: 5pm Wednesday 26 May

Applications should be made through the online form attaching a CV, before the closing date. Please note that elements of the form left incomplete will be deemed to render the application ineligible. They will be checked for eligibility and forwarded to the employer.