Tracking and Recovery of a High-Altitude Balloon Sub-Systems

Code: 22/34

Company: B2Space

Location: Newport and Remote

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 Q3 2022.

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:

B2Space is currently finalising the systems required for the launch of a rocket from a high-altitude balloon. With the development our Rockoon system, there is an increasing need for maturity of the balloon collar design, tracking and retrieval of the components on board and back-up safety systems.

This project will require a new balloon collar design that hosts a new tracking system. This balloon collar should offer protection from variations in temperature due to sunlight and changes in altitude, protection of instruments from solar radiation and the Earth’s magnetic field.

The tracking system implemented should be flexible, reliable and independent from the systems already on board to allow for tracking of a multitude of components once the balloon has separated from the gondola. The student is free to choose and develop a system they deem most suitable.

The parachute system should be designed with a tool that is adaptable should we need to use this parachute design for different sized balloon. This tool will be designed to take inputs such as descent speed and altitude and coded to output the parachute dimensions such as gore size and shroud line length.
The student enrolled on this project will have the support of engineers from three different disciplines to guide them through the project to create the best outcome possible.

**Applicant Specification:**

3rd year undergraduate, Masters Student, PhD or later in Aerospace Engineering or other relevant field.

**Minimum Requirements:**

- Experience of tackling an open problem and willingness to approach unfamiliar problems
- Exposure to structural mechanics
- Good verbal communication skills

**Preferred Additional Requirements:**

- MatLab experience
- Experience with 3D design packages such as Solid Works or Fusion 36

**Further details:**

8 weeks minimum fixed term contract to be agreed with successful candidate, placement ideally to be completed before the start of the next academic year. Salary is £1,500 per calendar month gross. The SPIN Induction Event is to be held on Monday 27 June 2022.

**Closing Date for Applications:** **12pm on Friday 29 April**

Applications should be made through the online form on the Satellite Applications Catapult website 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. Email applications made to the Satellite Applications Catapult, UK Space Agency, or host organisations will not be processed.