

Further Development of 3D Drone Navigation System

Project Code: 19/18

Project Description:

A Windows based software system will be further developed to display/control the flying objects, for example, drones, with the colliding detection ability and in real time. The system can be used to monitor air planes with ADS-B data, or to monitor drone with wireless data, with the ability to do the colliding detection with the given 3D map API.

The system will be developed with the Unity game engine using C# programming language and 3D map API (WRLD or Bing map API).

The functionality of the system will include:

- Navigation on a 3D map
- Zoom in/out view
- 3D object tracing based on the location data in plain format file(s)
- Real-time collision detection
- Warning mechanism with the given colliding threshold

Note that for each of the suggested functions, the sample code and algorithms will be provided, but there will be some changes required in the code.

Applicant Specification:

The successful applicant should have the good understanding of the 3D maths and some programming experience in any programming language, and interest in the satellite related and/or space related projects, and the strong ability of self-learning and working independently. Ideally have programming experiences in any programming language such as C#, C and C++ etc, but not essential.

Minimum Requirements:

The successful applicant should have great interests on the geo-spatial development as well as 3D visualisation development (game programming), and have previous experience on C# programming.

Preferred Additional Requirements:

It will be great if the applicant has algorithm development ability and previous experience in Unity, Unreal or Cesium, but not essential.

Further Details:

The successful applicant will gain some of the following skills and experience according to the tasks chosen:

1. Geo-Spatial knowledge
2. ADS-B data format and processing
3. Game engine, Unity or Unreal based programming
4. Map navigation (Visualisation programming on 2D/3D map)
5. Multi-threading programming
6. Source code control system (git, github etc)
7. The whole cycle of the software development including plan, design, coding, debug and test etc.
8. Presentation skill (the successful applicant will expect to give a presentation on his work)
9. Some other skills requested from the successful applicant can be considered, such as visual reality development, the machine learning development etc.

Start Date:

The Induction Day will be held at Harwell on Monday 17 June, it is intended this will also be the start date.

The Nitty Gritty:

Interviews will start the week commencing the 8 April. 8 weeks fixed term contract to be agreed with successful candidate but nominally with a start date around Monday 17 June which is also the SPIN Induction day at Harwell. With a salary of £1,500 per calendar month.

Closing date: 5pm Friday 22 March