

INTERNSHIP OFFER

Title: Development of embedded software applications on FPGA

1 UNIVERSITY SPACE CENTER OF MONTPELLIER

The University Space Center of Montpellier (CSUM) is the French leader in the development and operation of nanosatellites developed by students. It has acquired in-depth competences in the field of design, manufacturing, testing and operation of nanosatellites and their subsystems, as well as in the area of space project management and product assurance in the framework of university space projects. The CSUM has an AIT (Assembly Integration and Test) Facility, a CDF (Concurrent Design Facility) and both UHF and S-band Ground Stations. The CSUM develops its own 1U and 3U CubeSat nanosatellite platforms with the support of the Van Allen Foundation and both the French and the European space agencies.

2 INTERNSHIP DESCRIPTION

Description of the tasks:

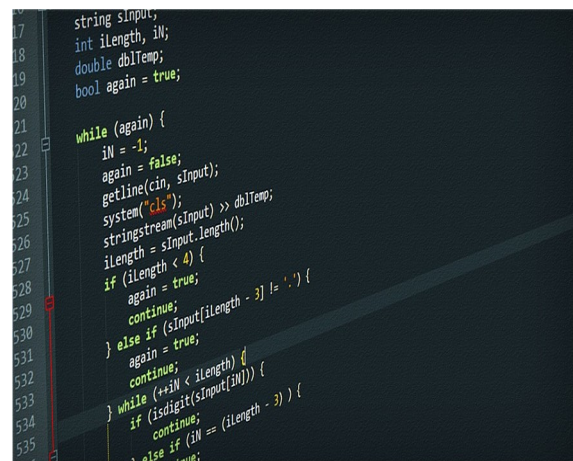
The objective of this internship is to design a data logger with a distributed memory system running on FreeRTOS implementations inside of an FPGA. The intern will be required to develop applications to run on dual soft ARM processors.

Additional tasks:

- Write and run unit tests for modules
- Contribute to driver development
- Documentation

Technical environment:

- FreeRTOS
- ARM Cortex-M
- Git
- Xilinx FPGA



```
17 string sInput;  
18 int iLength, iN;  
19 double dbTemp;  
20 bool again = true;  
21  
22 while (again) {  
23     iN = -1;  
24     again = false;  
25     getline(cin, sInput);  
26     system("cls");  
27     stringstream(sInput) >> dbTemp;  
28     iLength = sInput.length();  
29     if (iLength < 4) {  
30         again = true;  
31         continue;  
32     } else if (sInput[iLength - 3] != '.') {  
33         again = true;  
34         continue;  
35     } while (++iN < iLength) {  
36         if (isdigit(sInput[iN])) {  
37             continue;  
38         } else if (iN == (iLength - 3)) {  
39             continue;  
40         }  
41     }  
42 }
```

Skills/Languages: English (technical), C, Microcontroller programming, scripting languages (Bash, Python, ...) (bonus), Communication interfaces (CAN, ...)

Level: First or second year of Master's programme in computer engineering, electronics, or a related field

Location: Montpellier, France

Preferred starting date: 05/03/2021 (flexible)

Duration: 3-6 months

Supervisor, Function at CSUM: Cleo Joseph, Embedded Software Engineer

Stipend: 3.90 euros/worked hours for duration between 308 and 924 hours, 35 hours/week.

3 CONTACT

Please upload your application at: <https://csu.edu.umontpellier.fr/en/job-offers-internship/>