

# Propose a vacation student project for Summer 2018

Deadline for making your proposal(s): 17:00 Friday 23 March. This is a hard deadline.

Please fill in and submit this form multiple times for multiple proposals. Any queries, do ask - Toby.

## Project supervisor email \*

pavlidis@cs.man.ac.uk

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## Title of the project \*

Development of an IoT platform and user manual for lab practicals

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## Source of funding \*

- School funding requested
- You have your own funding (e.g. research grant)

## Objective of the project \*

Develop material for lab practical of the IoT related course COMP32412

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## Number of students requested (justify if > 1) \*

1

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## Start date, end date, total duration (weeks) \*

11 June, 17 August, 10 weeks

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## The benefit to the School \*

Enhance a third year module which successfully ran for the first time this year. The addition of practicals will offer more opportunities to the students to increase their understanding and knowledge on the practical aspects of IoT systems. Considering that a new IoT pathway may be developed for PGT students as well, this project will also set the basis for developing practicals for related PGT courses. The deliverables should be a prototype HW/SW platform and a detailed report.

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## The benefit to the student \*

The student will learn about the entire chain of IoT system development including both the edge devices (e.g., sensors and actuators), wireless communications, as well as the back-end, such as databases and web services.

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## Skills needed by the student. \*

Experience with hardware development platforms such as Raspberry-pi and Arduino is essential. Some knowledge of electronics and web services are desired.

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## Details of the work that the student would do \*

The student should develop a hardware-software co-designed system aimed for IoT applications. The system should consist of sensors and actuators, a micro-controller, some wireless communication and some web services to process and act on the obtained from the sensors data. The specifications of the system will be agreed with the supervisor. In addition, the student should produce a detailed report that will form the basis for the lab manual.

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## Infrastructure requirements and any required staff support other than the project supervisor \*

Development boards are available through School resources. Additional components required for this project are most likely available but even if they are not, the cost of these components would not exceed \$50 (likely less than that). As the project intends to build lab exercises, there will be broad consultation with Jeff Pepper and Steve Rhodes who support our labs such that the project is in-line with the practices and equipment supported by the School.

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## Supervision arrangements throughout the duration of the project (named staff and dates covering the entire duration) \*

Supervision will take place with face to face meeting at least once a week and upon absence of the supervisor through skype calls and emails.

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## Location of the project work (building/room) \*

Either Tootill 0 (the space used also for 3rd year projects) and if no space is available the student can be hosted in IT302. In general, no particular space requirements are necessary for this project.

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