

Dear Project Supervisor,

UK RISE would like to make you aware of a competition for your final year undergraduate and MSc. student projects in the area of hardware & embedded system security. The UK Research Institute in Secure Hardware and Embedded Systems (RISE), funded by EPSRC and the National Cyber Security Centre (NCSC), seeks to identify and address key issues that underpin our understanding of Hardware Security. As part of the wider RISE aims to further develop and improve UK's resilience in these areas, we wish to encourage the next generation of hardware & embedded systems security engineers and researchers through this UK-wide competition. Further information on RISE may be found on our website at www.ukrise.org.

Competition Sponsored by ARM

The competition is sponsored by ARM, who have kindly contributed towards the prize fund and donation of ARM-based hardware processor units, which may be a useful additional resource to support students entering the competition. See below for further info on Prizes and offer of free hardware, suitable for working on projects from home.

Competition Time Frame

The competition will synchronise with the 2020-2021 academic year.

19st Oct: Competition opened.

30th June: Deadline for entries from final year undergraduate & MSc Students. This will be in the form of a limited word count submission, with associated images and/or video presentation of the entry. A judging panel will determine the winning entries. The primary requirement is that the project has the underlying theme, or significant technical element pertaining to hardware or embedded system security.

31st August: Winners of competition announced via RISE website and social media channels, with winners contacted and prizes distributed.

Prizes

We will be offering prizes for entrants to the competition and at this stage can guide on the main prizes to be offered. We hope these prizes of tech + Amazon voucher should find appeal amongst students and encourage participation.

1st Prize: Your choice of MacBook Air or Surface Book 3, plus £250 Amazon Voucher

2nd Prize: Your choice of iPad Air or Surface Laptop Go, plus £150 Amazon Voucher

3rd Prize: Apple Watch SE, plus £100 Amazon Voucher

A PDF is attached which states the competition particulars and listing of prizes, which we encourage you to share with students when offering projects in the relevant areas of hardware & embedded system security.

ARM-based Hardware Kits

At the present time we expect that most project work will be undertaken remotely by students and are offering some hardware kits using ARM processor boards, which can be plugged into a PC/laptop USB port for power and programming. The headers support 3rd party Arduino hardware shields directly, or connection using jumper leads, avoiding need for any soldering. We are offering 2 types of boards in differing quantities: 80 x NUCLEO-F411RE and 20 x Nordic nRF52840 Development Kits.



NUCLEO-F411RE - These boards are based on an ARM Cortex M4, similar to processors used in IoT devices, industrial automation, or smart watches. They can be programmed using the free MBED platform and have an integrated programming/debugging capability. There are plenty of guides and tutorials online to get the student up and running. Although the boards do not have any specialist hardware security features built into them, they can be the processing platform to integrate with other 3rd party sensors and modules using the exposed headers.



Nordic Semiconductor nRF52840 Development Kits – These boards are recommended for advanced students who are comfortable with embedded programming. Primarily communications centres on Bluetooth, with NFC also supported. Board programming and debug is via the onboard J-Link programmer. This board has inbuilt hardware security features that can be leveraged for advanced hardware security projects. https://infocenter.nordicsemi.com/pdf/nRF52840_DK_User_Guide_v1.4.1.pdf

To obtain the free hardware kits, please email p.hodgers@qub.ac.uk to enquire further and we will be happy to organise sending those out to you.