**PhD Project Proposal**

School of Electronics, Electrical Engineering and Computer Science

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| **Proposed Project Title: Optical Readout for MEMS Sensors** |
| **Principal Supervisor: Dr Hamza Shakeel Second Supervisor: Dr Neil Mitchell** |
| **Project Description:**  Market of micro-electro-mechanical-system (MEMS) based sensors like accelerometers, gyroscopes, pressure sensors and oscillators for timing has shown 11% growth to reach $11 billion in 2018. This growth has been primarily driven by smart phone market. As we move closer towards smart cities and smart cars, the market size of MEMS built sensors will increase significantly.  Current generation of commercial MEMS sensors rely on either capacitive or piezo resistive measurements for actuation and detection (read-out). In order to improve sensitivity and performance of these sensors, optical displacement read out could in principle improve sensor sensitivity and performance. Integration of optoelectronics with MEMS sensors is an exciting new research area and could essentially provide compact and efficient solution. The project has great potential to generate intellectual property (IP) with further commercialization aspects.  Major part of the development work will be conducted at Queen’s Advanced Micro engineering Centre (QAMEC).  **Research Areas**: MEMS, Nanotechnology, Optics, Oscillators |
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