### Masters by Research Scholarship Ad

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<tr>
<th>Research Opportunity In:</th>
<th>Department of Electrical &amp; Electronic Engineering</th>
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<td>Title of Proposed Research Degree Project:</td>
<td>Development of real time traceability and visualization tracking system for use in medical device manufacture</td>
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| Description:                          | Industry 4.0 has opened the doors for vision systems to enter into the manufacturing arena with a bid to improve efficiency and perform quality checks and traceability in real time.  

One of the key issues with deploying vision driven traceability systems is how to uniquely identify and trace minute parts as used in the manufacture of medical devices. As these components are typically implanted inside the body such as catheters, heart valves etc. the method of marking the components must be done in a way that does not impact on the quality of the component or change the component in any way, or indeed change the production process as these will have gone through an approval process.  
The manner in which a unique identifier can be etched or positioned onto these minute parts also present a significant challenge.  

Reverse engineering work for the manufacture of one medical device component showed six minute components, ranging from 0.1mm to 5mm in size. Manufacture process can heat the products to over 200 degrees. Standard RFID tags are therefore not appropriate.

Therefore this research is concerned with identifying the best method of uniquely identify minute parts in a way that is agreeable to the product designers, how to then trace that part through the production floor through the use of a vision system, and the design of a traceability system that captures the part flow through the production floor into the final product. |
| Scholarships Condition:               | Funded by the Graduate Research Office – Postgraduate Fees for a period up to two years full-time and a stipend |
| Requirements of Candidate:            | • Level 8 Honours Degree in an appropriate field of study is essential (Grade 1:1 degree preferable, applications considered with a Grade 2:2 or higher with relevant experience),  
• Experience of advanced research and relevant work experience  
• Commitment to a 24-month programme of study and research full-time  
• Self-motivated with an ability to be self-directed in much of their own work |
- Able to plan work over longer periods and have strong writing and analytical skills
- Interest in pursuing a career in academia and/or research
- Interest in pursuing postgraduate studies in areas related to automation, vision systems, product traceability and verification.

**Contact:**
Informal Research Enquiries should be directed to the Jacqueline Humphries, Email: Jacqueline.humphries@lit.ie

**Deadline for applications:**
Tuesday 27th of August, 2019

**Application Process:**
Application forms to be emailed to the Graduate Studies and Research Office, LIT. Email: graduatestudies@lit.ie

For queries on application process please contact: graduatestudies@lit.ie