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Revolutionising monitoring systems, one 3D print at a time.

IPACS Australia

Real time equipment and infrastructure condition monitoring reduces un-expected and costly system failures. Traditional preventative maintenance methods can be highly expensive and may not improve system reliability. IPACS are leaders in the design and implementation of world-class sensor systems that remotely collect real-time data on the operation of industrial equipment and infrastructure networks.

In collaboration with UniSA's Industry 4.0 Testlab, IPACS is working towards the development of low-cost sensors to service the increasing client base in remote regions. This technology will help IPACS' customers save millions of dollars by avoiding equipment failure and extending the life of machines. The suite of 3D printers available at UniSA creates the possibility to print products at a level of complexity not possible in traditional manufacturing.

The Testlab Team and IPACS are currently working on three projects:

1. 3D printing of an existing wireless sensor case
2. New design of a wireless sensor case – developed by UniSA
3. A proto-type model for a new Data Acquisition System

The initial project was a proof-of-concept model of an existing wireless sensor case designed in-house by IPACS. The Testlab Team produced a 3D printed copy, followed by a more optimised design version of the original.

The new wireless sensor case, designed by the Testlab team, is a compact, 'all-in-one' model which is mounted on equipment and monitors systems wirelessly, cancelling out the need to run cables to a central unit. The sensor case was 3D printed using the Fortus 450mc and is made from ABS plastic, making it durable and environmentally robust. Along with saving company time, the new sensor case will drastically reduce costs (both in sensor cost and installation).

The 3D-printed proto-type model for a new Data Acquisition System is a lighter, easily transportable replica of the actual system, which can be used as a scale-demonstrator for client consultations. The model uses a combination of 3D printing assets available in the UniSA Testlab at the Mawson Lakes campus, including a FDM printer to produce the larger parts and a Poly-Jet printer to print the more complex replicas of circuit boards and logos.

The UniSA Testlab Team continues to work with IPACS Australia to evolve the designs into field-ready units.



Compact and easily transportable: 3D printed proto-type model of a new Data Acquisition System