IPACS
CLIENT CAPABILITY PROFILE

September 2017

IPACS
Dedication & Innovation

Capability Summary

IPACS designs, develops and sells asset management sensors, technology and software. IPACS is at the forefront in the collection, monitoring and reporting of real-time asset performance.

Contact Information

Dr. Vinay Sriram, General Manager—Engineering

Phone +61 4 02223214

Email vinay.sriram@ipacs.net.au

Web www.ipacs.net.au

Address

Module 3.0 Endeavour house,

11-15 Fourth Avenue,

Mawson Lakes, SA 5095

Active Export Markets

Europe, Middle East, Asia and North America

Certificates and Awards

In 2014, IPACS received the South Australian ICT iAward in the Industry category from the Australian Information Industry Association by the Hon. Jay Weatherill (Premier of South Australia).

Company Profile

IPACS designs, develops and sells asset management sensors, technology and software. They are at the forefront in the collection, monitoring and reporting of real-time asset performance in industries including resources, defence and manufacturing. IPACS operates in South Australia's first Remote Asset Management Centre, which opened in March 2015, to service the global resources industry. The Centre monitors the real-time asset performance of mining vehicles, boilers, smelters, SCADA systems and mining fixed-plant infrastructure for some of the world's largest miners and contract miners – including Arrium/Lucas, Thiess and OZ Minerals.

Accreditations

IPACS's systems have been accredited by:

- Det Norske Veritas (Certification Number: DSO-242-JEWA/Bvoe)
- Lloyd's Register (Certification Number: 05/00086)
- ABS Europe Limited (Reference Number: PID 450057).

IPACS sensors and data acquisition units have been certified to confirm to the EN50155 railway electronic standards. IPACS technology has been accredited by Lolyd's Register and Det Norske Veritas for installation on-board many marine platforms in Europe.

IPACS predictive analysts are professional qualified engineers with IEEE accredited engineering degrees. IPACS vibration analysts are all Level 3 ISO certified analysts.

Leading products and services

IPACS Remote Asset Management technology helps miners and contract miners save millions of dollars by avoiding equipment failure and extending the life of machines. In a remote mine, unplanned machine failure costs many days of lost production.

The IPACS process begins with the retrofitting of existing Heavy Mining Equipment (HME) or fixed plant infrastructure at a mine site with different types of sensors. These sensors generate information such as vibration, speed and temperature. IPACS technology uses wireless data transmission via the 3G mobile phone network to securely transmit data from anywhere in the world. Changes in vibration signature with respect to speed, are an accurate measure of a change in the equipment, indicating a fault or an impending failure.

At the IPACS Remote Asset Management Centre, Level 3 ISO certified vibration analysts, use this data to determine the mechanical health of the asset in real-time. IPACS then provides reports in clear, easy-to-understood formats, enabling miners and contract miners to make informed and timely decisions.

Customers can also remotely login to the IPACS Centre directly and review their data and analysis reports. IPACS staff also provide support and training to customers.

IPAC help customers improve reliability by superior fault detection and identifying operational issues which cause faults. The solutions IPAC provides extends the life of machines based on the real time condition.

International and Australian Projects

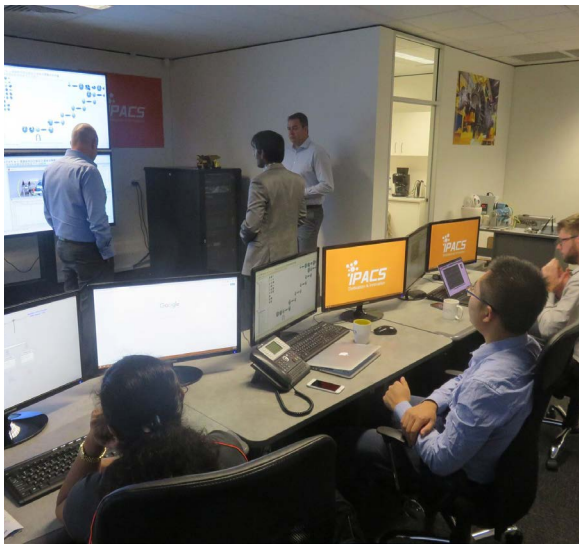
Key mining customers include BHP Billiton Olympic Dam (copper), Santos (oil & gas), Boral (aggregates), Arrium Mining (iron ore), Fortescue Metals Group (iron ore) and Oz Minerals (copper), Thiess (world's largest contract miner), Lucas Total Contract Solutions (South Australian contract miner) and Mineral Resources Limited (a major WA based contract miner).

Case studies

In 2015, IPACS engineers worked with two contract miners to identify their critical issues.

Lucas TCS - South Australian contract miner reported its most significant issues were the high number of breakdowns of its mobile crusher at Arrium's Iron Baron mine.

Thiess - operating the mine at the Oz Minerals Prominent Hill mine, were seeking to extend the



life of the planetary gearboxes in their mining trucks to deliver significant cost savings.

Networks of sensors and data concentrators were installed on the identified equipment at the two mining sites. Each concentrator had a 3G modem and router. Data was transferred from each site via a Virtual Private Network (VPN) to servers at the IPACS Remote Asset Management Centre in Adelaide. Engineers at the Centre monitored the performance of the equipment remotely in real time.

By way of example, a bearing fault on the Lucas TCS crusher gearwheel three was identified and immediately reported to the customer. Lucas TCS scheduled planned maintenance which prevented an unplanned shutdown. IPACS helped Lucas prevent any unplanned shutdowns due to mechanical faults resulting in improved reliability of the Lucas crushing plant by 20 per cent.

Thiess maintained 32 Caterpillar 793D dump trucks at the Prominent Hill mine site. Each has two planetary gearboxes that, as per the Original Equipment Manufacturer (OEM) recommendations, are rebuilt every 20,000 hours. The cost of each rebuild is A$180,000. Using IPACS technology, Thiess extended the life of the planetary gearboxes by 25 per cent, saving Thiess AU$120,000 per truck per annum.

In 2017, IPACS won a competitive bid from the Government of Hangzhou, China, to establish a Remote Asset Monitoring Centre in the city of Hangzhou. The aim of this Centre is to provide remote monitoring technology and services to the manufacturing, resources and energy industries in China. IPACS also signed a Memorandum of Understanding with a manufacturing company in Hangzhou to jointly develop technology for their global market.