



The
University
Of
Sheffield.

AMRC
Advanced Manufacturing
Research Centre



Research Organisation Name:

University of Sheffield Advanced Manufacturing Research Centre (AMRC)

About:

The University of Sheffield Advanced Manufacturing Research Centre (AMRC) is a world-class centre that specialises in carrying out world-leading research into advanced machining, manufacturing and materials for aerospace and other high-value manufacturing sectors. It is a partnership between industry and academia, which has become a model for research centres worldwide. The AMRC is dedicated to working with manufacturing businesses, from global aerospace giants to local SMEs. We work with over 100 member companies which pay an annual fee to access our resources and expertise, and with hundreds of other companies on specific R&D projects.

Location(s):

South Yorkshire (Rotherham and Sheffield) Lancashire (Salisbury) Wales (Broughton)

Technical Capability:

Titanium foundry; castings; Factory 2050; Factory+ digital factory; intelligent workbenches

Research Areas Relevant to the Foundation Industries:

Industrial digitalisation (all 6 FIs); process development in ferrous & non-ferrous casting (metals); emissions monitoring in raw materials products (all 6 FIs)

How to Engage with AMRC:

Membership; SME team; AMRC Forum

Contact Name and e-mail address:

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Case Study:

Company: Tinsley Bridge

Sector: Automotive, Rail, Defence, Renewables and Recycling, Energy, Oil and Gas

What we did:

- Retrofitted CNC machines with low-cost sensors to collect power consumption data
- Applied Artificial Intelligence and machine learning to the data and used AI algorithms to provide valuable manufacturing process insights

About the project:

We worked with the company on an AI-led project to learn what machine use looks like on Tinsley Bridge's workshop floor. We retrofitted CNC machines with low-cost devices to collect power consumption data and put this through an AI algorithm to provide new insights for the control and monitoring of manufacturing processes. The interrogation of machine utilisation rates gave the company better visibility of what was being manufactured and when, and the ability to assess if the business is scheduling effectively. The data allowed Tinsley Bridge to look at boosting productivity on the shop floor.