West Midlands Tech Awards – Property and Construction Tech Category – Ecrofit

Please provide an overview of your business (maximum of 400 words)

Please ensure that you within your overview you answer the following questions:

- What does your business do?
- What is your turnover and pre-tax profit for the last year?
- How many people do you employ?
- How many people did your business employ two years ago?
- How many people do you think your business will employ in the next two years?

Birmingham City University (BCU) is a highly diverse place, educating over 24,000 students from over 80 countries each year. Two large campuses in Birmingham city centre and Edgbaston provide state of the art facilities for students and partners.

University activity is driven by making real life impact, through a focus on practice-led education, academic excellence, applied research and innovation, and industry engagement. In terms of economic impact, the University's expenditure stimulates £532m of gross value added contribution to UK GDP; and supports 7,060 jobs nationally through direct employment, supply chain and wage consumption impacts.

Specifically, the EcRoFit initiative offers research and development, training and services to businesses involved in construction and the built environment. It comprises of 13 staff, led by Dr Shadi Basurra.

BCU's research into the optimal design and manufacturing of a retrofit system for energy-inefficient houses led to a project with Beattie Passive and other industrial partners to retrofit three houses and 12 flats.

EcRoFit has also delivered fully-funded courses offering businesses in the built environment, construction and property-related sectors the opportunity to improve their data analytics skills, as well as creating a precision software tool that will support a UK-wide shift to a low carbon model within the new build and retrofitting markets.

Why do you deserve to win this award category? (maximum of 400 words).

The research from BCU responded to the UK Government's desire to address the poor energy efficiency of homes. As a result of the work with Beattie Passive, the research has resulted in a

change in Beattie's policies and practices, helping to reduce costs and address the construction skills shortage through involving local housing providers in the building process. It has also improved the health and wellbeing of residents, as well as having an impact on the environment through a reduction in energy use of around 85 percent. Performance evaluation also showed that the project is estimated to deliver CO2 savings in the range 2-4t CO2 per year per dwelling.

Dr Basurra is now using the tools developed on this project as a core component for a new project, EcRoFit. Funded by the European Regional Development Fund (ERDF), EcRoFit is an initiative to provide technical assistance and training for businesses providing construction, installation and building services linked to energy.

EcRoFit's precision software tool has been awarded £1.5 million by the ERDF and BCU. The tool, titled iRet, will enable businesses to identify the most effective renewable energy solutions, retrofit solutions, balancing requirements for low carbon emissions, cost and occupant comfort.

"The EcRoFit project will deliver a more accurate assessment tool that is based on building simulations, multi-objective optimisation and AI. Researchers from the Birmingham City University Data Analytics and AI (DAAI) research group will work with large housing providers and commercial landlords to identify a list of typical domestic and non-domestic buildings requiring retrofit," says Professor Mohamed Gaber, part of the EcRoFit team.

"Retrofit providers will be engaged and receive training, consultancy and further assistance from Birmingham City University on how to use the proposed iRet tool to improve their retrofit offers."

One company that has benefited from EcRoFit is Midland Energy Professionals, who took part in a two-day course.

"The course enabled onboarding of knowledge and tools to support our members in their future work," they said. "I found your awareness of commercial needs, your technical prowess and enthusiasm of delivery to be highly relevant. The insights delivered were of significant interest."