Lightweight Exhaust Project Receives 'Green' Light

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Experts from JSE-UK, Unipart Eberspächer and Coventry University - in conjunction with a local high-performance vehicle manufacturer - plan to design and make exhaust systems weighing just 20 kilos through an intense six-month project.

Manufacturing will take place at the Institute for Advanced Manufacturing and Engineering (AME) in Coventry after funding for the R&D project was secured and the new system could be used in cars as early as next year.

Marcus Henry, principal engineer at Unipart Eberspächer, said major reductions could be made to the weight of exhausts without adding cost – and predicted the eyes of the automotive world would be on the results.

He said: "We have a vision for the future with lightweight exhausts and that future means they can reduce the overall vehicle mass by over one per cent, which is very significant in vehicle terms.

"The new exhaust will be made lighter using advanced stainless steel material to produce parts that are lighter than those made in titanium, the current material of choice for lightweighting."

"Normally, exhausts weigh 40 kilos and we can make it 20 kilos…and we aspire to be able to sell this product at prices that are consistent with today's prices. Who isn't going to want something that is half the weight and a similar price?"

"This will be a high-tempo project. Traditionally, a project like this would take several years, but the funding will enable us to accelerate and effectively resource the project so it will take just six months to create and test a prototype with view to mass manufacture by mid 2016."

A total of £272,000 is being invested in the project with half of the funding coming from the Niche Vehicle Network and the other half match funded from the other organisations involved.

It will be delivered through four phases – a month of design, a month of pressing components and two months of assembly before thermal, acoustic and vehicle testing at the local high-performance vehicle manufacturer.

Coventry University will help with advanced metrology, material selection and dissemination to the industry.

Mr Henry said: "The intent is to prove the technology is ready to be brought to the marketplace and mass manufacture, with initial production taking place in the brand new Institute for Advanced Manufacturing and Engineering in Coventry.

"The project team will work together to make it successful. Without funding through the Niche Vehicle Network the project would not be possible – you wouldn't be able to do it in such a short time and vehicle manufacturers would be focused on delivering the vehicles of tomorrow rather than spending time on complicated areas like this."

He added "It shows the game-changing ability you can achieve through collaboration between the likes of JSE, Coventry University and Unipart Manufacturing.

"We can bring new technology to the market - prove it works through the involvement of AME - and then deliver it through the Unipart Eberspächer facility next door.

"The project also has the potential to involve a number of engineering and manufacturing students so they can put the theory they are being taught into action. They can touch and feel it, play a part, ask questions and make suggestions."

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