

Waste heat slashes fuel consumption

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The Formula SAE racing car developed and built by a team at Deakin University. Credit: Donna Edwards

A minor modification to your car could reduce fuel consumption by over seven per cent.

The Deakin University invention uses waste heat to reduce [friction](#) by warming the [engine oil](#). A prototype has been built and tested and the inventors are now talking to the car manufacturers and developing an aftermarket conversion kit.

The system, which can be retrofitted, works by diverting [waste heat](#) to bring engine oil up to its optimal operating temperature. It was developed by researchers at Deakin University led by Mr Frank Will of the School of Engineering during his PhD project.

“Preliminary testing of our system has demonstrated fuel savings of over seven per cent as well as significant reductions in exhaust emissions,” Frank says.

The work is being presented through Fresh Science, a communication boot camp for early career scientists held at the Melbourne Museum. Frank was one of 16 winners from across Australia.

A typical car engine wastes about 80 per cent of the fuel consumed. Only 20 per cent of the fuel’s energy is used to drive the car forward. The rest is lost as heat. He believes his [invention](#) – which he has named OVER7™ – represents a smarter approach to vehicle engine design.

“One of its most important features is that it doesn’t have to heat all the oil in the sump. Instead, it heats only the active oil in the engine lubrication system. This makes the overall heat transfer process much more efficient.

“The system has the potential to be retrofitted to existing engines and we don’t think it will require big changes. It should be much cheaper to fit than an LPG conversion for example. Built into a new car it should pay for itself within a month or two,” he says.

“We also think the system will be suitable for a range of vehicles, including diesels, hybrids and those using alternative fuels.” Other benefits include the potential to reduce engine wear and improve performance.

“We were very pleased with the results of tests on our prototype system. Now we are working on further testing with [car manufacturers](#) and their suppliers, in order to optimise the technology to best suit their needs.”

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