

3D printing speeds up the development process at GMSA

Engineers at General Motors South Africa (GMSA) have been working with 3D printing since 2007 and, since then, it has played a key part in the localisation and validation process during the development of the sixth-generation Isuzu KB, which was launched in South Africa last year.



Fully functional shifting spanner was the first item print. Image: www.quickpic.co.za

"We have used this technology to grow prototype parts of a range of components, including plastic clips, mudguards, support brackets, air cleaner and air-conditioner components, radiator shrouds, rear step components, electronic module housings, and the utility box for the extended cab variant. In addition we often use the machine to make our own 'special tools' and functional components to support our testing equipment, which we use on a daily basis in the engineering workshop," said Dave Doubell, validation engineer of GMSA.

3D printing begins with a virtual design, which is created on modelling or computer-aided design (CAD) software. An STL file (stereo lithography file format) is then fed into the 3D printer, which translates the virtual design into a physical prototype part, building it layer by layer using a thermoplastic material called ABS plastic.

Saves time and cuts development costs

Vehicle engineering manager, Jessel Vencencie and his team use the technology extensively as it saves time and cuts development costs. He said: "Through this technology we are able to make functioning prototype parts, which are then used to give us an early indication of how the actual part will function when fitted to a vehicle. 3D printing allows flexibility by speeding up the development process of parts as we fine-tune the design of a component for better form, fit and functionality."

The thermoplastic parts produced by the process can endure exposure to heat, chemicals, humid or dry conditions, and mechanical stress.

"Development of the sixth-generation Isuzu did not stop when we launched the vehicle. We are constantly studying

customer needs, feedback and warranty data to develop and improve the capabilities of the KB continuously. The beauty of rapid prototyping is that you can test components by installing three or four samples quickly without much cost. This allows us to try more options as we work to enhance the product," said Wendle Roberts, vice-president engineering of GM Africa.

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