



Taking The Weight Off 3D

Thanks to the concise 3D representations made possible by a breakthrough technology, 3D will no longer be the preserve of the heavyweights.

We live in a world where visual cues go a long way in explaining a complex subject. In fact, as 3D images are the closest representations of our real world, these are preferred when it comes to demonstrating concepts, especially in the automotive or health education sectors. Sometimes 3D images are even animated and sound-enabled so as to simulate moving, talking 'live' subjects.

While animated 3D images are indeed very useful, there is a snag insofar as their use is concerned. These images are so huge that handling files containing them becomes cumbersome. Moreover, heavy digital files are difficult to share over the Internet or any other network.

A lightweight multimedia 3D model

Which is why 3D Solid Compression's (3DSoc) patented Virtual Interactive Solid (VIS)

The fortune cookie

As more people turn to the Internet, they also want 'more' on it. More media, better quality, faster retrieval, a quick search, and more. As content and usage grows, the technology also needs to improve equally, and there is definitely a lot of opportunity for innovation in that space.



K.K. Venkatraman,
CEO, 3DSoc

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equipment manufacturing, marine, offshore drilling and healthcare verticals as those that would gain a significant advantage from digital mock-ups that enhance the analysis of designs and real-world problems. 3DSoc customers in the automotives space already include the likes of Bajaj, TAL (part of the TATA group), Triveni, TVS Sundaram Clayton, etc.

While all these are Indian companies, 3DSoc is set to make a global impact as well. In a sense, the technology, per se, was born with a global identity—it is the outcome of research conducted at Stanford University (Palo Alto, USA) and the Indian Institute of Science (Bangalore).

Born of mixed parentage

3DSoc's four co-founders include **Professor B Gurumoorthy, the chairman, who has a PhD in mechanical engineering from Carnegie Mellon University.** He is currently a professor of mechanical engineering and product design, and the chairman of the Centre for Product

Design and Manufacturing at the Indian Institute of Science. **Dr Krishnan Ramaswami is the company's CTO, and has a PhD in mechanical engineering from Stanford University.** K K Venkatraman, the CEO, has over a decade of industry experience to his credit. **Professor Fritz Prinz, who holds the Rodney H Adams Professor and Robert Bosch Chair in the School of Engineering and is director, Rapid Prototyping Laboratory and director, Fuel Cells Consortium at Stanford University, is also a co-founder of the company.**

Thanks to this mixed parentage, 3DSoc—an endeavour funded by IDG Ventures—boasts of well-placed founders who continue to work closely with their employing institutions to further research in 3D representations, and thus improve upon the product.

"All VIS models are Internet ready in the sense that these models can be viewed in a standard browser, as well as on mobile devices."

K.K. Venkatraman

Compressing files, not quality

3DSoc's VIS product is undoubtedly a technological breakthrough, as technologists have grappled with the problem of compressing 3D data for a long time.

Based on a paradigm shift in the way 3D models are represented, VIS aims at achieving efficiency in the way data is represented. To this end, 3DSoc created the 'vis' 3D representation.

The technology is best described by using the MP3 format as an analogy. The MP3 format created for music files succeeded in making data much lighter and simpler to transfer. For instance, an audio file containing 50 songs would have an approximate file size of 60 to 70 MB, but when the same file is compressed and converted into an MP3 format, the file size is considerably reduced. Of course, certain redundancies or excesses need to be removed from the audio files in order to compress their size. As a result of this, the quality of the sound file has been observed to undergo a slight deterioration in the MP3 format as compared to an audio file.

However, in the case of the 'vis' format, when heavy 3D file sizes are compressed to lighter sizes, there is no change in the quality of

technology comes across as a breakthrough that could well achieve the company's vision of '3D For All'. VIS is a very concise 3D model representation that allows text and sound annotations, animation, textures, hyperlinks and interaction, in addition to a basic geometrical image. But being lightweight, the representation is amenable to easy digital transmission.

To realise just how revolutionary VIS is, consider a comparative analysis of animated formats in various programs. According to K.K. Venkatraman, CEO, 3DSoC, "A 3D representation of a bicycle with animation occupies just 2.6 KB in VIS vis-à-vis 32,600 KB in ProE's .asm format or 1,700 KB in Google SketchUp. Insofar as conciseness is concerned, VIS models score well above conventional CAD (computer-aided design) representations, while being 100 times smaller than CAD files. These models are even smaller

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than frequently used JPEG/GIF images. Moreover, all VIS models are Internet ready in the sense that these models can be viewed in a standard browser, as well as on mobile devices."

Applications galore!

These features suggest that VIS could potentially redefine the way 3D content is distributed, making 3DSoC one of the leading players in interactive, collaborative and lightweight 3D solutions.

Speaking about the applications of the VIS model, Venkatraman lists education, enterprise publishing, and rich immersive applications (RIA), both on the Internet and on mobile

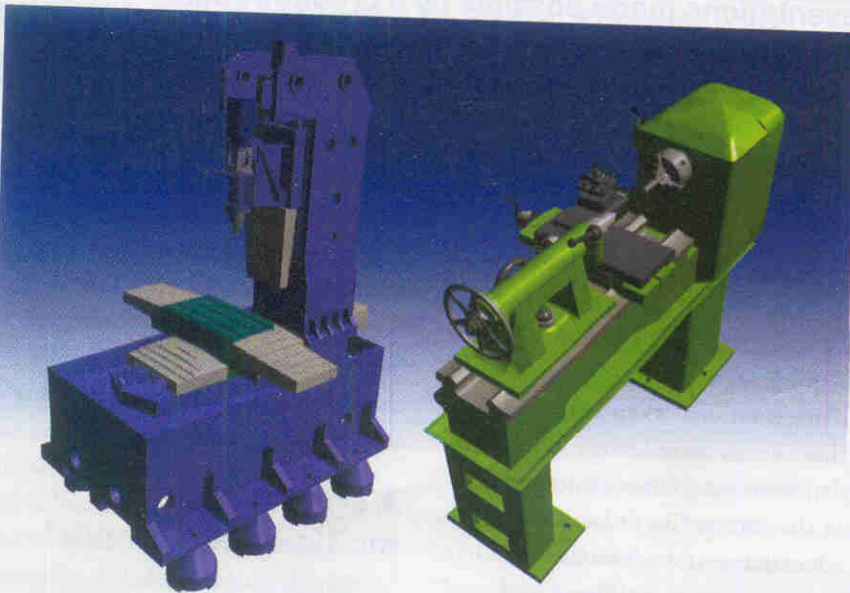
platforms, as market segments that could benefit from this technology. In the area of enterprise publishing, VIS models would help create and deliver e-catalogues and e-manuals containing interactive 3D content linked to an audio narration that could be extensively used to promote sales or for product training and maintenance.

RIA constitutes an interesting use of the VIS model to enhance or, quite literally, take online advertising using 2D images to the next (read 3D) level. Besides, mobile offerings such as mobile advergimes (games carrying advertising messages in them) across various industry verticals are all set to change the way a target audience receives and responds to advertising messages. 3DSoC recently created advergimes for a leading FMCG company during the IPL (Indian Premier League) cricket series.

The possibility of developing interactive 3D learning capsules would enable educational institutions, e-learning companies and technical learning institutes to enhance the learning experience through next generation e-learning systems.

Indian company, global agenda

Venkatraman lists the automotive, aerospace, heavy



Being lightweight, the VIS enabled 3D representations are amenable to easy digital transmission

3DSoC's VISPublisher solution

3DSoC's VISPublisher suite comprises:

- VISTrans, to translate existing 3D models from various formats (such as CAD representations) into the VIS format with no loss of detail
- VISPublisher, to enhance VIS models by adding animation, text, hyperlinks and audio, and thus generate interactive 3D e-manuals or e-catalogues
- VISPlayer Pro, to view interactive VIS content

the compressed 3D image. What's more, there is no loss of data.

An eye on innovation

VIS has no direct competitors in the interactive 3D modelling space. Adobe's Flash is extensively used to add animation and interactivity to Web pages, but

it does not offer a concise file size advantage. In comparison, 3DSoC provides a single platform to create concise, interactive content in a platform-independent manner.

Nevertheless, the founders strongly believe in fostering a culture of innovation in their

firm. "Innovation is the key for any organisation to keep itself ahead in today's competitive market. It is even more so in a product set-up. We encourage everyone here to think differently, so that innovation becomes part of the DNA," says Venkatraman.

If products like VIS are any indication, innovation does indeed seem to have become an integral part of 3DSoC. **T**

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