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## **3D Printing for Consumer Goods: Super-light Singlespeed Bike from the Printer**

**Additive manufacturing and 3D printing have become an integral part of industry and mechanical engineering. The team of developers at software pioneer CoreTechnologie is now using the example of a bicycle to show that even complex everyday objects can be produced quickly, easily, and cost-effectively using 3D printing technologies.**

Moembris, 08.08.2023 (ab/mas) - The innovative team at software manufacturer CoreTechnologie (CT) has for the first time developed a particularly lightweight and inexpensive bicycle made from 3D-printed aluminum components and standard carbon tubes. The fully functional singlespeed version of the bike weighs just 7.1 kilograms ready to ride. In contrast to the conventional production of carbon frames, the simple workflow enables fast, uncomplicated, and automated production.

### **Optimal Frame Geometry, Simple Construction & Casual Design**

The CT software developers combined self-constructed, 3D printed connecting parts made of aluminium (AlMgSi10) and machine-made, extremely light carbon tubes from the company Carbonforce. The tubes were joined using high-strength two-component adhesive from the aircraft industry.

The project was completed in a record time of just two months from idea to ready-to-ride prototype. The CT team optimized the design based on an existing 56 centimeter frame geometry and perfected it in numerous 3D renderings. By cleverly designing the frame parts, the singlespeed version can also be upgraded with gears.

Thanks to the degrees of freedom made possible by computer aided design (CAD) in conjunction with the 3D SLS printing process, a particularly light and simple design was achieved that, thanks to its excellent riding characteristics, represents a counter-trend to technically complex and heavy e-bikes.

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In this interesting project, the software manufacturer used its 4D\_Additive software to optimise wall thicknesses, generate surface textures, and realise the smooth production of 3D printed parts on the SLM machine of service partner FKM.

In numerous test rides, the 3D-printed bike proved that it is very robust and resilient and can be easily moved along different paths. With the project and the resulting prototype, the team from CoreTechnologie has shown that with the help of current software and hardware, the production of complex daily and consumer items is possible in a cost-effective, fast, and simple way, independent of fragile supply chains.

"In addition to the casual design and riding pleasure, CoreTechnologie's super-light bike put an incredulous smile on the testers' faces as soon as they picked it up," says visionary and CT CEO Armin Brüning, delighted with the latest CT development.

Further information on the software manufacturer is available at

[www.coretechnologie.com](http://www.coretechnologie.com).

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Text length incl. headline & intro: 2,815 characters incl. spaces, 44 lines of about 60 characters each

### **Background Information**

The Software manufacturer CoreTechnologie founded in 1998 is headquartered in Frankfurt/Germany and has subsidiaries in France, Japan, and the USA. The company is the leading provider of 3D Computer-Aided Design (CAD) translation software, known as 3D\_Evolution™ (conversion, repair, simplification, analysis), 4D Additive™ (3D printing software suite), 3D\_Analyzer™ (CAD viewer with analysis tools) and 3D\_Kernel\_IO (CAD interfaces SDK). The mission of the company is to optimize seamless MCAD interoperability in the value chain and to develop customized solutions for PLM integration and process automation. The customer portfolio of CoreTechnologie includes 600 leading companies in the automotive, aerospace, mechanical engineering, and consumer goods industries, worldwide.

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