

3D Learning Hub

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Automotive and 3D printing: The Complete Guide to the 3D printed car!

Introduction

When it comes to the automotive industry, additive manufacturing is a major game-changer. Additive manufacturing technology used to be only a prototyping tool – and obviously, it still is. But now it's also starting to be used in **car manufacturing**. You read it right, we can now build cars using 3D printing. This is the result of a global tendency in the world of additive manufacturing: this technology is now recognized as one of the serious manufacturing technologies, and not just as a way to build a good proof of concept or prototype. Why is 3D printing so interesting for car manufacturers? What can be achieved today? What are the potential next steps for **3D printed cars**? Get ready for

the ride and discover how 3D printing changes the automotive industry!

Start implementing 3D printing in the automotive industry

Advantages of 3D printing of the automotive industry

While both customers and manufacturers start to dream of a fully 3D printed car; this is being made possible by the ongoing improvement of 3D printing materials and technologies. Leading to a real boom of interest in innovations around the automotive industry.

We still have to wait a little before seeing the fully 3D printed car on our streets, but additive manufacturing is already well-used in the industry for several applications. Manufacturers are seeing all the advantages of this technology for their business strategy, from product development to production. Shorten your proof of concept and production time, and save money on your tooling process. We will see that some applications of additive manufacturing are game-changing and could be a real competitive advantage.

Using a car design app

A 3D modeling software is the first step you have to take while starting a 3D printing project. You first have to choose the perfect automotive software to begin the design process. There are no 3D programs dedicated to automotive projects available on the market. But there are several software you can currently use for your automotive projects.

The best solution is to use a 3D software made for mechanical and engineering uses, able to create industrial and technical equipment. These apps are changing the way cars are developed and built. Using 3D allows for faster iterations. These apps are offering simulation and visualization features and could help you with realistic rendering that might help you with presentations.

This is an easy method to work on the design of cars, or on car parts. With these 3D programs, you can use advanced tools to create electronic devices and mechanical parts. You can check our [selection of the best car design apps](#), but keep in mind that these software are not for absolute beginners, you have to be quite experienced to use one of them.

What 3D printing materials can be used by the automotive sector?

In order to implement additive manufacturing inside a demanding sector, such as the automotive industry, you need to use adapted materials. The mechanical properties you expect from traditional manufacturing are now available with 3D Printing with high-performance materials. Here are the best 3D printing materials to use for automotive applications:

- **Polypropylene**

Some plastic materials, such as Polypropylene, are highly used in the automotive industry. [Ultrasint® PP nat 01](#) has a mechanical profile enabling new applications, especially for the automotive industry. For example, Polypropylene can be used to 3D print interior components, dashboard parts, airflow, or adapted fluid systems.



- **Polyamide 6**

Additive manufacturing allows for other possibilities with materials offering thermal resistance such as [Ultrasint® PA6 FR](#) an advanced engineering polymer powder containing a flame-retardant (FR) additive. This material combines excellent mechanical and thermal performance with flammability requirements; it is especially suited for applications in the electronics and transportation sector.

[Ultrasint® PA6 MF](#) highly resistant and perfect to create functional parts for engine bay

parts and many other parts in the transportation sector. PA6 is strong enough to hold the whole engine assembly and handle all heat, vibration, and static loads. Thanks to 3D printing and the media tightness of this PA6 MF material, you can create made-to-measure chemical resistant parts such as 3D printed reservoirs.



- **TPU**

Are you looking for a resistant and flexible material? With impressive properties such as high rebound, low compression set, and good fatigue behavior, TPU is ideal for applications requiring shock absorption, friction, or flexibility!

[Ultrasint® TPU 88A](#) or [Ultrasint® TPU 01](#) can both be used in the automotive industry to create car interior components, for example. With a Shore A 88, air filter covers, bellows gimbal, or any flexible and resistant parts needed in the automotive industry can be 3D printed using TPU.



- **Nylon PA11**

It is also possible to use more sustainability into your manufacturing process using bio-derived materials. 3D printable Nylon PA11 is based on 100% renewable biomass sources. The Castor seed is extracted from the castor plant to make oil. The oil is then converted into the monomer (11-aminoundecanoic acid), which is finally polymerized into Polyamide 11.