



CUSTOMER  
STORY

# ETHEC city

Shaping the future of mobility  
with 3D printing



**Sintratec AG**  
Badenerstrasse 13  
5200 Brugg  
Switzerland

[www.sintratec.com](http://www.sintratec.com)  
[info@sintratec.com](mailto:info@sintratec.com)

**ETHEC city**  
Tobias Oesch  
ETH student &  
Technical Lead

[www.ethec.ethz.ch](http://www.ethec.ethz.ch)  
[ethec@ethz.ch](mailto:ethec@ethz.ch)

**ethec**

Tobias Oesch  
Technical Lead  
ETHEC city



---

«The SLS technology definitely has a place in the automotive sector – especially in prototyping and developing vehicles for the future.»

---

**ETHEC city is a Swiss student project that aims to radically change the mobility of tomorrow with the technologies of today. To that end, the team develops an electric motorcycle with an ingenious two-wheel drive that saves energy and improves the range.**

Tobias Oesch studies mechanical engineering at the ETH Zurich and is the technical lead of the ETHEC project. In a team of nine students, he took up the challenge to develop a prototype of an electric motorcycle in just one year – from the concept to construction, assembly, and testing. Tobias was motivated to tackle one of today's main issues of the automotive sector: sustainability. «If we want to address the problems of the climate change, we have to make severe improvements to our urban and sub-urban mobility», he states.

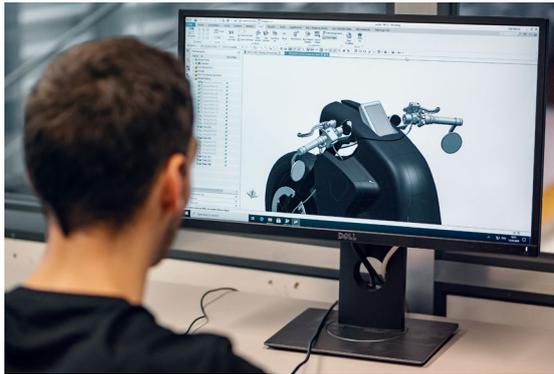
#### More freedoms thanks to 3D printing

Conventional manufacturing methods soon turned out to be unsuitable. «Since it is a prototype, we often only needed single work pieces and not a thousand – in these cases additive technologies are ideal», as Tobias puts it. The team used various 3D printing technologies to manufacture design parts of the casing but also structural components such as the mounting of the foot pegs. Tobias emphasizes the degrees of freedom the students: «With 3D printing you can build more complex structures, which gives you the possibility to combine several functions into one part.» Fewer parts mean lower costs and more importantly less weight.

#### Laser sintering as a driving force

Constructed to work as end-use parts, the requirements for the 3D printed objects were high. When the students began looking out for partners, Sintratec offered to sponsor several components. Subsequently, parts such as the casing for the display or the fuel filler flap were laser sintered on the Sintratec S2 system using PA12 nylon powder – with convincing results. «The quality of Sintratec's products were extraordinarily precise with a very good surface quality», Tobias points out. «The display case had to be durable enough to be protected against the weather and strong enough to sustain mechanical impacts.» For the ETH student, the SLS components fulfilled these demands.

---



ETHEC city was developed as a research prototype to improve the drive of future electric vehicles.



High durability and strength: SLS printed casing of the display and the fuel filler flap.



Tobias Oesch is convinced that motorcycles will play a significant role in the E-mobility of the future.