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Students from Eindhoven University of Technology developed Lina: world's first bio-based car.

TU/ecomotive is a student team from the Eindhoven University of Technology. On the 17th of May they presented their fourth concept car: Lina. The world's first car that will be structurally built from bio-composites.

Unique to Lina is that her entire chassis, body and interior are made from bio-based materials. Thanks to a weight of just 310 kilograms, the car is extremely efficient, which will be shown during the Shell Eco-marathon 2017 at the Queen Elizabeth Olympic Park in London. The city car seats four people.

Since recent years, improving efficiency has been the focus in the Automotive industry. While optimizing fuel-efficiency to reduce emissions is a positive development, it is accompanied with negative side-effects. Car manufacturers opt for lightweight materials such as aluminium and carbon fibre to create lighter, more efficient cars. Processing of these materials however, requires 5 to 6 times more energy than steel, the material which they replace. Consequently, energy that is saved while driving the car is now spent during the production phase. In addition, recyclability of these lightweight materials is lacking significantly compared to steel.

TU/ecomotive utilizes a combination of bio-based composites and bio-based plastics to create their chassis. The bio-based composite is made from flax, a plant that can be grown in the any moderate climate. The bio-composite has a strength/weight ratio similar to glass fibre, but is manufactured in a sustainable manner. A honeycomb shaped core produced from bio-plastic, known as PLA and made entirely from sugar beets, is placed in-between two flax composite sheets to provide stiffness to the strong composite.

The drivetrain of Lina is electric. Power is supplied by modular battery packs, giving a power output of 8kW using 2 DC-motors. This allows Lina to reach a top speed of 80 km/h.

To complement Lina's sustainability, she is equipped with several High-Tech features. NFC technology implemented in her doors is used to detect and recognize different users, which makes Lina highly suited for car-sharing platforms.

Lina can be seen during the Shell Eco-marathon 2017, held from the 25th to the 28th of May in Queen Elizabeth Olympic Park. From the 5th of June Lina will tour the Netherlands in an attempt to raise awareness for the problem it tries to solve.

Note for the editorial office (not for publication)

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Please mention the creator of the added images.

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