ARS ELECTRONICA

Firefighting@Ars Electronica Festival:

The Future of Helping

(Linz, August 2, 2018) Technologies change our world. They open up new, unimagined possibilities and nurture scenarios about which we can only speculate today. This is speculation we have to engage in. And that also applies to those who are getting prepared today to be optimally equipped to deal with the emergencies and catastrophes of the future. We're talking about first responders, emergency service providers. While some are developing new concepts and strategies for future missions and, in doing so, entering into unusual alliances, others are focusing on the deployment itself, the interplay of humans and machines. What this means in concrete terms will be demonstrated at this year's Ars Electronica Festival. One of the big attractions awaiting festivalgoers is a vehicle placed in service in April by the in-house fire brigade of the city's utility company, LINZ AG. Europe's first fully equipped fire truck powered by an electric motor was developed jointly by LINZ AG, Rosenbauer and Kreisel Electric. And Rosenbauer is peering even further into the future; what it sees is manifested now as a Concept Fire Truck. And the company is taking the next step together with artists, scientists and designers on the staff of the Ars Electronica Futurelab: swarm steering of self-driving vehicles. A clear and present challenge will be facing Upper Austrian fire companies at the Emergency Error Battle in POSTCITY.

State of the Art: eFiretruck on Duty in Linz

It was quite an ambitious project that LINZ AG, Rosenbauer and Kreisel Electric launched about two years ago—a fully-equipped firefighting vehicle powered by an electric motor. This vision has been a reality since April, and can be seen on duty on the streets of Linz. Rosenbauer's KLF-L fire truck is based on a Mercedes Sprinter chassis for which Kreisel Electric has already come up with a variety of eMobility solutions. It features four Kreisel batteries in a modular configuration with a total capacity of 86 kWh, which is sufficient for all types of deployment. Despite its considerable weight– the vehicle's body, battery, crew and on-board equipment—and also taking into account how it's driven on its various missions, the vehicle has a range of 160 kilometers. An electric motor with a stable electrical output of 120 kW delivers the necessary power. Thanks to a rapid charger, the battery can be fully loaded in a very short time. Ars Electronica festivalgoers can get an up-close-and-personal look at the LINZ AG in-house fire brigade's eFiretruck at POSTCITY.

A completely new philosophy: Rosenbauer's Concept Fire Truck

What impact will digitization, urbanization, demographic shifts, autonomous mobility and other current trends have on firefighting? What will firefighting technology be called upon to do in the years to come? An initial response to these questions is provided by Rosenbauer's Concept Fire Truck, a trailblazer in the truest sense of the word. The Concept Fire Truck constitutes a multipurpose emergency vehicle in every regard—a firefighting vehicle, a rescue vehicle and an ambulance all in one. There is room in its optimized spatial concept for the complete range of equipment that the fire services require for their various operations. The chassis, driver's cab and superstructure (with or without an integrated crew cabin) constitute a single unit. This provides decisive advantages with regard to vehicle dynamics and stability, as well as a low height in tandem with improved use of space and greater crew protection. The crew and driver cabins are merged to form a barrier-free compartment, which can be modified for every operation. Depending on the type of deployment, the

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corresponding equipment is available on board, along with sufficient room to transport injured persons and the first responders caring for them. The Concept Fire Truck is an extremely compact and maneuverable emergency vehicle with a highly functional design, which above all sets new ergonomic benchmarks. This is a vehicle that can be easily and safely operated from ground level, and no longer requires firefighters to "climb" into the cabin. Indeed, this truck is more reminiscent of a command center than a crew transporter. Moreover, it's a vehicle which, when on the move and in operation, is extremely efficient and produces very limited exhaust and noise emissions. Anyone who would like to get a glimpse of the fire truck of the future is invited to attend the 2018 Ars Electronica Festival in POSTCITY. And there's a special treat for kids—future firefighters can use brain-computer interface technology developed by g.tec medical engineering to operate the Concept Fire Truck's light signals using only their thoughts!

Swarm Steering of Self-driving Vehicles – Rosenbauer Meets Futurelab

Rosenbauer's Concept Fire Truck boldly underscores this Austrian manufacturer's claim to global technological leadership as a fire service supplier. And the company is following up this achievement with the next quantum leap forward. Their focus is on swarm steering and self-driving vehicles, and thus a field of research in which the Ars Electronica Futurelab has established itself as a leader. With spectacular shows and an entry in the Guinness Book of Records—the world's largest autonomous swarm of drones launched in cooperation with Intel in November 2015—the Futurelab has made a name for itself worldwide. The Linz-based lab-atelier developed an operating system to coordinate the movements of self-driving vehicles (SwarmOS), which international corporations such as Japanese telecommunications giant NTT is using as a development platform in its R&D departments, and will now serve as the basis for collaboration with Rosenbauer. The emphasis is on how autonomous swarms might possibly be employed by first responders. "By utilizing Ars Electronica's system, we can tightly focus our R&D on the product itself," said Alexander Ronacher, head of innovation technology and knowledge management at Rosenbauer. "We don't have to reinvent the wheel; instead, we can immediately concentrate on what are, for us, the key aspects of the concrete application." Horst Hörtner, head of the Ars Electronica Futurelab, is looking forward to the collaboration and sees this as further confirmation of the quality of the Futurelab's work. "It's incredibly exciting every time we have the opportunity to blaze new trails with a creative, innovative R&D partner in an endeavor in which we're uncertain as to where it will ultimately lead. And the fact that our partner in this case is headquartered right in our own backyard makes it even better!" Michael Friedmann, head of strategy, innovation and marketing at Rosenbauer, regards this R&D joint venture on swarm steering as an important step. "We are totally convinced that autonomous vehicles will be taking over special tasks in the near future, and we aim to be among the first in our sector to work on this approach. The development platform with the Futurelab will underscore our role as a driving force for innovation."

Challenge for Upper Austrian Fire Brigades: The Emergency Error Battle

While LINZ AG is busy deploying Europe's first fully-equipped eFiretruck, and Rosenbauer and the Ars Electronica Futurelab are doing research on future deployment scenarios and the potential of swarm steering, for firefighters themselves, the highest priority is optimizing the efficiency of interpersonal interaction as well as the interplay among human beings and machines. Each member of a crew has to master his/her assignment, be intimately familiar with the equipment they're called upon to operate, and be able to count on one another. One of the ways firefighters demonstrate that they have indeed perfected all required procedures and display the results of the physical and mental training they've received is a competition modeled on real-world emergency responses. One such challenge will be

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staged on Saturday, September 8, 2018 at this year's Ars Electronica Festival. Teams made up of the men and women of fire departments throughout Upper Austria will face off amidst POSTCITY's spiral packet chutes and put their skills to the test. In addition to the usual events that make up these competitions, participating teams will face some unusual challenges—tests designed to give an audience of festivalgoers as well as the competitors themselves an impression of how firefighters in the not-too-distant future will be deploying and directing their technical equipment.

August 26th is the registration deadline for teams that want to take part in the Emergency Error Battle on Saturday, September 8, 2018. Every participant receives a small token of our appreciation: a free one-day pass to the 2018 Ars Electronica Festival including complementary lunchtime food & beverage service, and a Rosenbauer Starter Package. Details are available on the Ars Electronica Festival website https://www.aec.at/error/en/. The Emergency Error Battle is produced jointly by the Federation of Upper Austrian Fire Departments, Rosenbauer and Ars Electronica.

LINZ AG E-Feuerwehrauto:
https://www.linzag.at/portal/de/ueber_die_linzag/medien/presseaussendungen/linz_ag/presse_detail_ag_11203.html#

Concept Fire Truck by Rosenbauer: https://www.rosenbauer.com/en/int/rosenbauer-group/press/financial-press/wirtschaftspresse-detail/nd/concept-fire-truck

Oberösterreichischer Landes-Feuerwehrverband: http://www.ooelfv.at/

Emergency Error Battle: https://www.aec.at/error/en/emergency-error-battle/

g.tec medical engineering: http://www.gtec.at/

Ars Electronica Festival: https://www.aec.at/error/en/

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