PRESS RELEASE

Paris, 28 October 2021

Keolis demonstrates a 5G remotely controlled autonomous electric minibus with its partners, using artificial intelligence

- **In preparation for full autonomy, Keolis, in partnership with Urban ICT Arena, Telia, Ericsson, Intel and T-engineering, demonstrated a 5G remotely controlled autonomous electric minibus at Kista Science Centre in Stockholm, using artificial intelligence to monitor the well-being and behaviour of passengers inside the vehicle.**

- **The trial aims to show how public transport on autonomous vehicles can be safely and comfortably experienced by future passengers, with Keolis as the remote operator at a supervision tower.**

- **This represents another milestone on the path to full autonomy, following a successful 5G trial in Royal Djurgården, Stockholm in 2020. Similar trials and services have recently been launched in the Swedish city of Gothenburg, Saint-Quentin-en-Yvelines (Paris region) in France and Montreal in Canada.**

On 28 October 2021, Keolis and its partners Ericsson, Telia, Urban ICT Arena, Intel and T-engineering tested a 5G-connected, remotely monitored autonomous electric minibus at Kista Science Centre in Stockholm. The bus is supported by an internal artificial intelligence (AI) system that detects passengers' well-being and behaviour.

This demonstration explores how real-time data from inside the autonomous vehicle can be transmitted to the centralised supervision (traffic) tower and how, in return, the vehicle responds to its commands with the support of an AI system and extremely high 5G network data speeds. The data, collected by cameras, includes counting passengers and tracking items left behind on the bus. These lost items are signalled to passengers using outboard microphones. The system also detects 'abnormal' passenger behaviour and informs the supervision tower if someone is not feeling well. The operator in the supervision tower can then take immediate action by calling a doctor or an ambulance.

The incorporation of artificial intelligence is an important step in preparing for full autonomy and in removing the driver safely from the bus. Keolis and its Swedish partners plan to start running trials without a safety driver on board at the end of 2022/early 2023.

5G connectivity is provided by Telia in collaboration with Ericsson. Intel is delivering processing power to both the IT system in the vehicles and the supervision tower, as well as the mobile network.

The vehicle, equipped with self-driving technology, is provided by the Swedish technology firm T-engineering.

Bernard Tabary, CEO International at Keolis: "*Enhancing everyday lives by making shared mobility smarter and more sustainable is essential for the future of public transport. As we move towards fully autonomous driving, our demonstration in Stockholm represents an important new step by integrating AI detection sensors to create a safe, comfortable passenger experience. We are extremely pleased with this new development in autonomous driving with our partners in Sweden, following successful trials over the past year*."

A pioneer in autonomous driving

This demonstration follows the one in Royal Djurgården, Stockholm in 2020, when Keolis teamed up with the same partners to demonstrate remote control and supervision of autonomous electric vehicles using 5G technology.

From mid-January to the end of May 2021, Keolis also tested a Navya-built autonomous electric shuttle service in Gothenburg's Lindholmen Industrial and Science park. In 2019, Keolis partnered with Volvo to demonstrate a 12-metre-long electric bus, which was able to park, wash and recharge autonomously at the Keolis depot in Gothenburg.

A pioneer in autonomous driving, Keolis trialled the world's first autonomous vehicle in Lyon, France in 2016. Since then, Keolis has operated autonomous vehicles in Australia, Belgium, Denmark, Canada, Sweden, the US and the UK, carrying 210,000 passengers and covering over 140,000 km. In parallel, Keolis is testing fully autonomous vehicles at its own test site closed to traffic in Châteauroux, France.

Keolis in Sweden

Keolis Sverige has been present in Sweden since 2003 and operates 1,600 alternative energy buses in four Swedish regions, covering 100 million kilometres every year. Keolis has over 4,500 employees in Sweden.

About Keolis

Keolis is a pioneer in developing public transport systems and works alongside public authorities who want to enhance shared mobility systems to grow the appeal and vitality of their regions. A world leader in operating automated metro and tramway systems, Keolis and its partners and subsidiaries Kisio, EFFIA, Keolis Santé and Cykleo support the core business with innovations offering new and bespoke shared mobility solutions for modes including trains, buses and coaches, trolleybuses, shared car solutions, river and sea shuttle services, bike share services, car sharing, fully electric driverless shuttles and urban cable cars. In France, Keolis is the second largest provider of parking management solutions through its subsidiary EFFIA, and the country's leader in medical transport since the creation of Keolis Santé in July 2017. The Group is 70%-owned by SNCF and 30%-owned by the Caisse de Dépôt et Placement du Québec (Quebec Deposit and Investment Fund) and employs 68,500 people in 16 countries. In 2020, it posted revenue of €6.1 billion. In 2019, 3.4 billion passengers used one of Keolis' shared mobility services. www.keolis.com

** Australia, Belgium, Canada, China, Denmark, France, Germany, India, the Netherlands, Norway, Qatar, Senegal, Sweden, the United Arab Emirates, the United Kingdom and the United States.*

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