FUTTEC Microwave Road Repair Systems

PRESS RELEASE

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Hradec Králové Region bets on prevention and innovation: it will use FUTTEC microwave pothole repair technology for road maintenance, featuring artificial intelligence

The Hradec Králové Region has long been seeking innovative and cost-effective solutions for the maintenance of its road network. Starting in November, the region plans (as part of a one-year pilot project) to deploy an artificial intelligence system to detect emerging cracks and potholes in road surfaces, which will then be repaired using FUTTEC – a patented Czech microwave technology. The objective is to identify damage to Class II and Class III roads (managed by the regional road administration) at an early stage, allowing their repairs before the issues escalate into more extensive damage that would be significantly costlier to fix. The project aims to verify the benefits of this approach for faster, more efficient, and more economical maintenance of regional roads; this example of good practice from the Hradec Králové Region holds great potential for long-term application in road network management across other regions of the Czech Republic as well.

On Class II and III roads, the timely detection and repair of minor defects are of critical importance. The Hradec Králové Region manages over 3,700 km of roads – a network characterized by high density and a low proportion of motorways. Consequently, these lower-class roads provide essential daily connections between towns and villages, and their condition directly impacts the accessibility of various parts of the region. This spring, the Region tested a FUTTEC® patented Czech microwave technology on the II/297 road between Svoboda nad Úpou and Černý Důl in the Trutnov district: a machine called "FT-3 microwave patcher" is able to detect defects in asphalt surfaces and then use microwave technology to carry out repairs that are fast, durable, and environmentally friendly. A new one-year project builds on this initial experience: it aims to confirm that early identification of damage can prevent it from worsening, thereby avoiding the need for more extensive and costly repairs later on. Furthermore, the project will demonstrate in practice how the integration of artificial intelligence and microwave technology can enhance the efficiency, speed, and cost-effectiveness of maintaining regional roads.

"We want faster and more efficient road repairs that are also more cost-effective for public finances. If we can use artificial intelligence to detect defects before they spread – and repair them immediately – we will significantly improve the quality of the region's roads. We shall see how these new technologies perform during testing, but this is definitely the direction we want to take in the future," says Petr Koleta, Governor of the Hradec Králové Region.

For FUTTEC, the deepening of its cooperation with the Road Administration of the Hradec Králové Region marks another milestone in expanding the use of microwave technology for repairing potholes on Czech roads – to the benefit of everyone who uses them on a daily basis.

"Building on our experience working with road networks managed by the Road and Motorway Directorate (ŘSD) or TSK Praha, we are increasingly focusing on Class II and Class III roads. These are often in poor technical condition, while the authorities responsible for them must manage with limited maintenance budgets. Our collaboration with the Hradec Králové Region marks an important step for us: it is precisely on these regional roads that we see significant potential for preventive repairs – interventions that can extend roads lifespan and delay the need for costly reconstruction. We believe the results of this pilot project will demonstrate that combining artificial intelligence with microwave technology can serve as an effective tool for the modern management of road infrastructure. Our goal is to gradually expand this cooperation to other regions, helping to ensure that public finances allocated for road maintenance are spent as efficiently as possible," says Jiří Rušikvas, Director and Chairman of the Board of FUTTEC.

More about FUTTEC and its patented microwave technology:
FUTTEC has developed from a small Czech start-up, founded in 2011, into a dynamic technology company. Its microwave technology, which is the result of many years of research and improvement, was created in cooperation with the Institute of Chemical Processes of the Academy of Sciences of the Czech Republic and BUT in Brno. The company has been working on the development of its "microwave patchers" of the FT-3 series and mobile sets with the FF-9 microwave furnace, cooperating with all types of domestic road administrators (including TSK Prague, ŘSD and regional SÚS) and expanding into foreign markets - e.g. the USA.

The patented FUTTEC® technology is designed for permanent repairs of potholes in asphalt surfaces on roads, cycle paths, and other asphalt surfaces. It works on the principle of heating asphalt mixtures using microwave technology, which ensures deep heating of the repaired area without degrading the asphalt mixture. The result is high strength and long service life of the repaired area. Thanks to this principle, road repairs can be carried out all year round, including in winter. Other advantages of FUTTEC microwave technology include speed, flexibility, efficiency, and savings in costs and human resources, environmental friendliness, health safety and transparency (during the repair, a protocol is created, which is a warranty certificate for the repair).