

Press Release

Erlangen,
May 15 2012

High Precision in Road Construction: Use Of Satellite Navigation For Asphalt Machines

The Fraunhofer IIS, together with MOBA and other partners, has successfully concluded the „ASPHALT“ project (Advanced Galileo navigation System for asphalt machines). The concluding meeting took place close to Enspel (Westerwald). With the aid of satellite navigation, road construction can be significantly improved in the future. To this end, the IIS has developed a special Galileo/GPS/EGNOS receiver.

The majority of all paved roads has an asphalt covering. Yet asphaltting is a complex process in which the parameters of temperature, thickness of the layer, compacting and evenness each play an important role, decisive for the final quality. The smallest flaws in construction soon lead to cracks, unevenness and chuckholes. The consequence: the roads must be reworked or renewed ahead of the original time plan. The objective of the „ASPHALT“ project is to improve the quality of road coverings and to optimize process sequences. As a result, maintenance costs can be significantly reduced.

„ASPHALT“ makes use of localization technologies in road construction, to support and control asphalt machines. An important constituent part of the project is the Galileo/GPS/EGNOS receiver developed by the Fraunhofer IIS. The multi-frequency receiver has several advantages: the use of two frequencies reduces disturbances from the ionosphere; as a result, the position is determined with improved precision. Combining GPS and Galileo also improves the availability of

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satellite signals; special algorithms calculate the position. By means of the exact control of the machines, an even thickness of the layer and thus an even road covering are guaranteed.

In addition, process sequences and supply chains were analyzed and optimized. Providing the material, actually laying it, and the compacting process: these are partial steps within the system as a whole. With the help of data logging from start to finish, and the networking of all components, the sequence of tasks in road construction can be improved and simultaneously documented. The most important parameters – e.g. temperature, layer thickness, and compacting – are exchanged between the machines, like in a network. Partial steps can thus be ideally coordinated with each other. In the future, the complete monitoring and protocolling of process sequences are important and useful, particularly for public authorities and also road-construction companies.

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MOBA Mobile Automation AG, DKE Aerospace, Dynapac,
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Picture: Project coordinator Marcus Watermann, MOBA Mobile Automation AG, with representatives of the funding body European GNSS Agency.

About Fraunhofer IIS

Founded in 1985 the Fraunhofer Institute for Integrated Circuits IIS in Erlangen, today with more than 750 staff members, ranks first among the Fraunhofer Institutes concerning headcount and revenues. As the main inventor of mp3 and universally credited with the co-development of AAC audio coding standard, Fraunhofer IIS has reached worldwide recognition. It provides research services on contract basis and technology licensing.

The research topics are: Audio and video source coding, multimedia realtime systems, digital radio broadcasting and digital cinema systems, integrated circuits and sensor systems, design automation, wireless, wired and optical networks, localization and navigation, imaging systems and nanofocus X-ray technology, high-speed cameras, medical sensor solutions and supply chain services.

The budget of more than 95 million Euro is mainly financed by projects from industry, the service sector and public authorities. Less than 25 percent of the budget is subsidized by federal and state funds.

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