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Welcome to the flexWARE Newsletter!

Welcome to the second newsletter of the flexWARE project. The team has been working on the project for over one year now and is on course to achieve the targets set at the beginning of the project. This edition of the newsletter includes updates on current and past activities and information on upcoming events. Hopefully you will enjoy this issue of the flexWARE newsletter!

flexWARE News:

With the system requirements analysis phase behind us, attention has been placed on the design of the initial system architecture. Since there are still open decisions, concerning some technical details, a simulation workshop with all involved consortium members has been conducted.

We always appreciate and look forward to your feedback, so do not hesitate to contact us!

Project Status

Figure 1 shows the milestones of the project in terms of project phases. As shown, the project is grouped into four different phases. Phase 1, where the user needs are identified, is already finished. Phase 2 deals with the system concept definition, followed by the system implementation. Finally, the project ends with the system verification. The project is currently in the middle of Phase 2 as indicated by the red arrow in the figure.

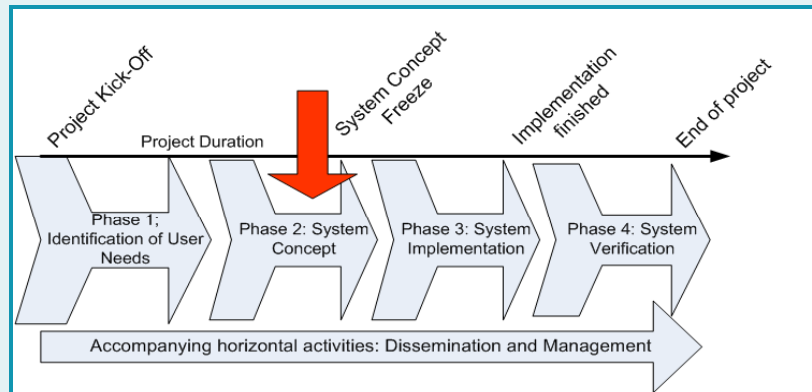


Figure 1: Project phases



flexWARE Event News

Preparations for the Review Meeting in Brussels

The members of the flexWARE consortium had met in Brussels to prepare the EU Review Meeting on June, 3rd and 4th. Additional points on the agenda had been the selection of the main use cases, system requirements, system architecture and other wireless technologies as possible alternatives to WLAN in flexWARE. The open issues and already available results had been presented in front of the whole consortium. Furthermore, the project outlook and the management had been discussed as well.

First Review Meeting in Brussels

On June, 5th 2009, the flexWARE consortium presented the status of the project to the European Commission (EC) which was assisted by independent experts. The objectives of this meeting included presenting the progress made according to the project work plan, highlighting the milestones already achieved in the project and discussing the research activities for the upcoming work packages. Therefore, an overview of the project objectives and the progress in the first work package was presented to the commission, followed by a discussion about work packages assigned to different project partners. Moreover, plans for the management and dissemination of the project were outlined in front of the EC. The review committee confirmed that the project fulfilled the expectations for the first phase and also provided useful suggestions for improving the activities of upcoming work packages.

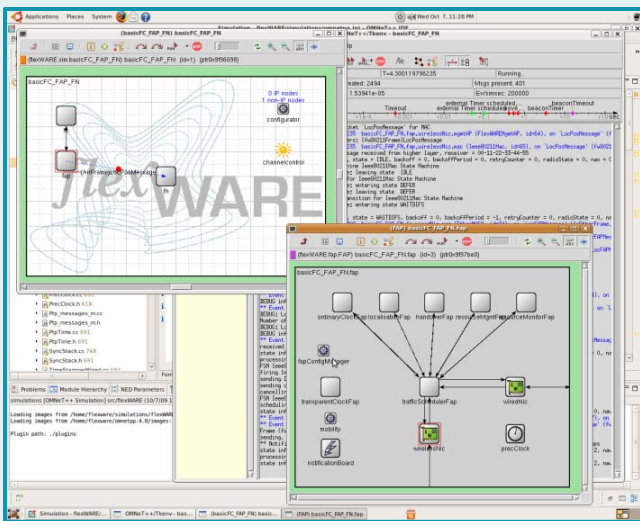


Figure 2: Simulation layout

Simulation Workshop in Wr. Neustadt

To analyze the possible flexWARE functionalities and refine the system architecture, the partners decided to arrange a simulation workshop. It took place from September, 12th to September, 18th 2009 in Wr. Neustadt (Austria), and was hosted by the Austrian Academy of Sciences. The outcome of the workshop was the establishment of an end-to-end packet communication framework over the flexWARE infrastructure. Thereby, a basis for further investigation by means of simulation was laid out. At the end of the workshop there was a full consortium meeting where the achieved results and future steps were discussed in detail.



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flexWARE Technology News

flexWARE: use cases, requirements, advantages

For a potential end-user of the flexWARE system, it is particularly interesting to understand different types of use cases and scenarios for which the flexWARE system can be used and, to be more precise, how reliable communication is carried out on the factory floor. For this reason the consortium has gathered many different scenarios in which flexWARE can be used. Typical examples are applications in flexible manufacturing systems with automated guided vehicles (AGVs). Furthermore, wireless communication can simplify control systems for cranes and hoists, and at the same time reduce costs and improve their flexibility.

Another interesting area of application for wireless communication is the simplification of airport maintenance. Moreover, there is a need for new features, e.g. it could be useful to localize people with the precision of one meter, etc.

In a factory, there are many strict requirements, like a high level of system security and very low latency and jitter for wireless communication. Also, the data availability and integrity has to be guaranteed. All of these requirements are tackled, as they belong to the main objectives in the project: flexWARE aims to guarantee mobility of goods with traceability, timely communication, improved productivity and scalability.

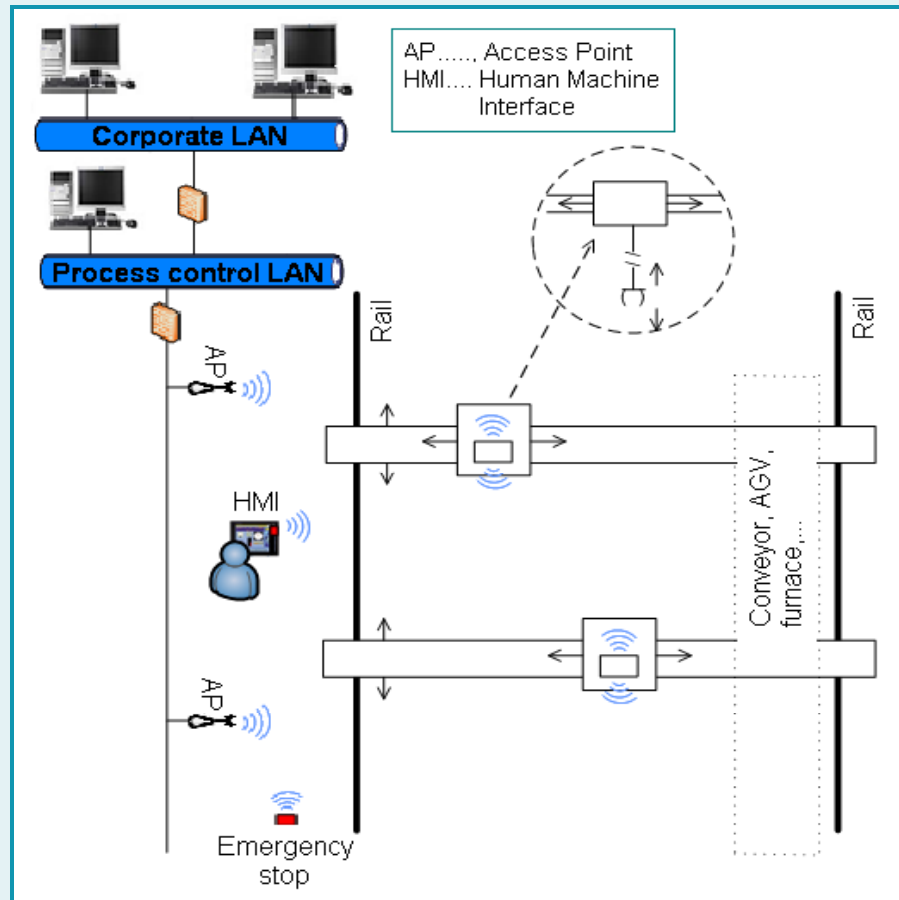


Figure 3: Hoists and cranes Infrastructure

Meet the Partners...

Interview with Dr. Lutz Rauchhaupt (ifak)

What is the particular challenge and why is it important that flexWARE is done in an EU project?

flexWARE addresses the development of a highly sophisticated secure and reliable wireless network with real-time communication, clock synchronization and localisation capabilities. This requires expertise in different research fields which can hardly be found in a single country. Additionally, the success of such a network approach depends on the acceptance of many automation device and system manufacturers which could develop different flexWARE products. Thus, the dissemination and exploitation of the project results in the consortium partner's countries will be the key to success.



Figure 4: Dr. Lutz Rauchhaupt

The work package you are leading (System Specification) is obviously one of the most important parts for the success of flexWARE. What are the particular problems in this task?

The individual research fields, such as real-time communication, clock synchronization, localisation and overall security, are quite complex. Designing a factory-wide wireless network in industrial environments, given the requirements of industrial automation applications, is a real challenge. In order to be successful, it is necessary to discuss in advance how these single complex parts could work together in the future. The specification is the precondition for evaluating the approaches at an early stage, e.g. by simulation, and provides the presupposition for a competent assessment of the project results.

What do you think about the factory of tomorrow, considering the context of flexWARE? Will it be fully wireless?

I do not assume that we can renounce wired industrial communication in the factory of the future. However, wireless communication obviously gains measurable advantages by providing flexibility in production and sparing efforts for the operation of manufacturing or process systems.



Meet the Partners...

Interview with Dr. Lutz Rauchhaupt (ifak)

You have the role of a research partner in this project. What do you think about the goals of flexWARE beyond the scope of having flexWARE products in the next 5-8 years in the market?

I am not able to foresee. However, I am envisioning that the regulations for the frequency spectrum use will be more flexible in the future. On the one hand, this will free up more spectrum resources for the factory floor. On the other hand, this will require cognitive radio solutions in order to use the frequency spectrum as efficient as possible and with respect to the effective needs of the application, resulting in a quite complex problem. Nevertheless, it will lead to the development of tailored wireless solutions for automation systems, providing the effective required quality of service without wasting available spectrum resources.

There are already some products on the market which use wireless technology on the factory floor. What are the changes of the system design of those approaches compared to flexWARE?

Indeed there are already many working wireless solutions in industrial automation. It is no longer a niche technology. However, today these solutions are mostly point-to-point cable replacements or complete solutions from a single vendor. In order to deploy the expertise of many organisations, including small companies, an open approach is necessary. Thus, an interoperable system like flexWARE can not be developed by one company only. Shortly, flexWARE will lead to an open wireless system approach for the factory floor, and even many small and medium sized companies will make their own contributions with special implementations out of their specific field of expertise.



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