COMMERCIAL MOBILE PLATFORMS IN AN INDUSTRIAL ENVIRONMENT

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As commercial mobile devices grow more powerful their field of application expands. A mobile device that looks more and more like a computer can also be used like one, even in an industrial context. There are many different commercial mobile software and hardware platforms on the market today. Companies in the process of incorporating such mobile platforms in their systems stand before a difficult decision. This thesis evaluates the most popular platforms today from Tetra Pak's industrial point of view and shine light on the most important questions that arise in the platform decision process. This entails defining what an industrial context is, identifying relevant user scenarios and composing a requirement specification that evidently leads to a platform recommendation.

The case company, Tetra Pak, was founded year 1951 in Lund by Ruben Rausing and Erik Wallenberg and is one of the world's leading food processing and packaging solutions companies. It is currently the only international company in the world able to provide integrated processing, packaging, and distribution line solutions for food manufacturing. Tetra Pak provides processing solutions within five food categories: dairy, cheese, ice cream, beverage and prepared food. The thesis is conducted at the Tetra Pak Processing Systems AB offices in the department for Automation Solutions in Lund. [3].

Tetra Pak Processing Systems AB is seeking to further improve their existing systems by using commercial mobile devices, such as mobile phones and pads. The first step in doing this is to determine how the existing systems work and how they can communicate with mobile devices. Interviews were conducted and the five most popular mobile software platforms on the market today: Android, Symbian, IPhone, Blackberry and Windows Mobile, were evaluated [2] [1].

The existing systems consists of many different components, but the most important one is the PLC. The PLC is the brain of the processing machine, it handles the communication between all the components, such as valves, pumps and motors, and can be programmed to perform different tasks. Another important component is the database, where all historic information is stored. These two components can both be accessed by a mobile device over a regular Ethernet network through different techniques.
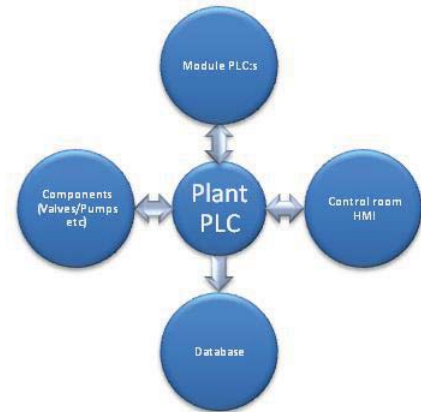
Communication overview

Android is pointed out as the most suitable platform for future development within Tetra Pak, but it is also recommended to use web solutions as much as possible. The reason is that web solutions can be accessed from any platform, if the company decides to go in another direction in the future.

Two mobile prototypes are constructed, fulfilling the most relevant user scenarios. One prototype remote controls a PLC over a wireless network. This makes it possible for Tetra Pak's engineers to control and test their machines from anywhere in a factory. The other prototype stores service instructions for every type of industrial components, like valves and pumps, in a mobile device. This makes it easier for maintenance engineers to access the service information, even when not connected to a network.

1. REFERENCES

[1] Gartner , "Gartner Says Android to Become No. 2 Worldwide Mobile Operating System in 2010 and Challenge Symbian for No. 1 Position by 2014", "http://www.gartner.com/it/page.jsp?id=1434613" , August 2010.

[2] Tetra Pak Processing Systems AB , Interviews with Tetra Pak employees , February 2011.

[3] Tetra Pak Website, "http://tetrapak.com/", February 2011.