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Automation is deployed in a great range of different domains such as the chemical industry, the production of consumer goods, the production of energy (both in terms of power plants and in the petrochemical industry), transportation and several others. Through several decades the complexity of automation systems and the level of automation have been rising. This has caused problems regarding the operator's ability to comprehend the overall situation and state of the automation system, in particular in abnormal situations. The amount of data available to the operator results in information overload. Because the notion of what information is relevant continually changes, the suggestion is to develop context-aware systems that can assist the operator. In order to create a context-aware system we must first examine what context is, and what kinds of data we should consider constituting the context. Since context-aware applications have been developed in other research areas it seems natural to analyze the findings of this research and examine how this can be applied to the domain of automation systems. By evaluating existing architectures for the development of context-aware applications we find that some important differences exist between the notion of context in these systems and in the automation domain. We find important differences in the needs for information between the control room operators and field operators in complex automation systems, and the need for the field operator to be present at various locations in the facility suggests the use of wireless mobile devices. We present a number of applications where a wireless mobile device can provide the field operator with great benefits, both in terms of information and interaction. The use of mobile devices presents a number of limitations in terms of input and output capabilities, which make the use or context-aware computing even more relevant in this case. Different types of mobile devices are discussed. The use of a positioning system for locating the field operator and inferring his tasks and intentions from the location is proposed. In combination with other types of context information this allows the system to present a usable interface on the mobile device. An architecture for processing context information in the automation domain is presented and two cases are used to support the applicability of the architecture. The use of context-awareness in automation is found to provide several benefits, in particular in applications for field operators.