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Industrial automation technologies and the realization of factory 4.0

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Industry 4.0 is an initiative actively funded by the German government in collaboration with a number of European manufacturing technology companies. The goal of this initiative is to develop the technological foundation for "smart factories" using industrial networks/SCADA systems to gather, process and position data from a network of distributed intelligent via sensors. From our perspective at Sick Inc. a large German optical sensing and safety company, we will help realize the smart factory through distributed intelligent in what were previously simple sensors. Newly developed industrial networking methods allow more information to be pulled from smaller and more remote devices. Think Internet of Things. Moreover, these devices can be controlled and adjusted remotely, which eliminates a very time consuming maintenance operation. Simple photo electric sensors can now gather information far beyond part presence and are able to track the time of a specific event, report issues downstream to other sensors and make a decision as to how best to detect certain objects. This has resulted in other benefits such as miniaturization of product because they no longer need buttons, indicator LEDs or displays. These sensors can also provide predictive maintenance information as they can send out a message before they fail so sensor replacement can be scheduled when the line is not running. The method by which this data is transmitted is also very important and we see the developing EtherCat standard as a great fit for factory floor communications. EtherCat provides a singular "clock" on which every sensor is running so for high speed positioning application using interrupt sensors to gauge position or size can be much more accurate. This is also evolving into a safety communication standard, which is slowly being accepted by the U.S. and European front end semiconductor machine manufacturers.

Biography

Cameron Gieda is an Automation Specialist with over 20 years of experience designing and selling automation systems and technologies for some of the world's top automation companies such as Keyence, Omron, Honeywell, Emerson, Fluke and now Sick Inc. In my current role in Silicon Valley he collaborates with companies ranging from consumer electronics, automotive, semiconductor, biomedical and aerospace. Key areas of interest are machine vision, 3D Vision, Safety devices and optical inspection.

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