

PRESS RELEASE

PRESS RELEASEFebruary 4, 2015 || Page 1 | 1

Optical activity detection with privacy protection

Fraunhofer IIS/EAS has developed an intelligent image processing system for automation solutions. With the help of optical sensors, it reliably detects positions and movement patterns of objects and is able to automatically distinguish between humans and equipment. Core of the solution is a sensor system with integrated data processing. Powerful algorithms enable to differentiate various activities within a defined area. Moreover, no real image data needs to be released which optimally protects the privacy of the people who have been located.

Image processing systems have to satisfy more and more demanding requirements for industrial applications. Therefore, researchers at Fraunhofer IIS/EAS have developed an intelligent measuring system, which can be used for building automation as well as for real-time production monitoring. It is based on an energy-efficient image sensor system-on-chip including very high-performance algorithms for data processing. The system does not only detect precisely in time and location if and where objects and people are within a defined area but also the intensity of their activity. As a result, people can be automatically differentiated from equipment that is displaying motion or engaging in movement (televisions, fans, etc.). The system evaluates the data from different image sources and analyzes the surface characteristics of the detected objects. Hereby, the textures can be classified independently of the lighting and with useful spatial and temporal resolution.

As the analysis of the object textures is already performed on the chip, the approach of the Fraunhofer IIS/EAS offers one major advantage - no real image data needs to be released. This protects the privacy of the people who have been located. At the same time, motion tracking or scene analysis can be carried out easily. The optical system can be combined with various software modules which, among other things, can determine the amount of individual objects as well as the entering and leaving of objects within a certain area. In addition, the intervals, in which the system is analyzing a region, can be adjusted to the respective situation. This, for example, enables to individually define the sampling rate for dynamic locations as well as for areas with low movement e.g. desks.

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