vision components®

Advanced driver-assistance system (ADAS) for person detection

Retenua AB, Örebro, Sweden

The challenge

Detecting workers around industrial vehicles

Retenua, an intelligent sensor systems developer, explored ways to improve occupational safety around industrial vehicles and prevent accidents. An automatic solution for reliably detecting workers should overcome the shortfalls of existing technologies.

In particular, it should

» operate independently of lighting conditions and postures and, for example, also recognize unconscious or injured persons lying on the ground,

» only report the presence of people, not objects, in order to avoid frequent false alarms.

This called for a compact embedded vision system that did not require an additional computer for real-time stereo image processing.

The solution

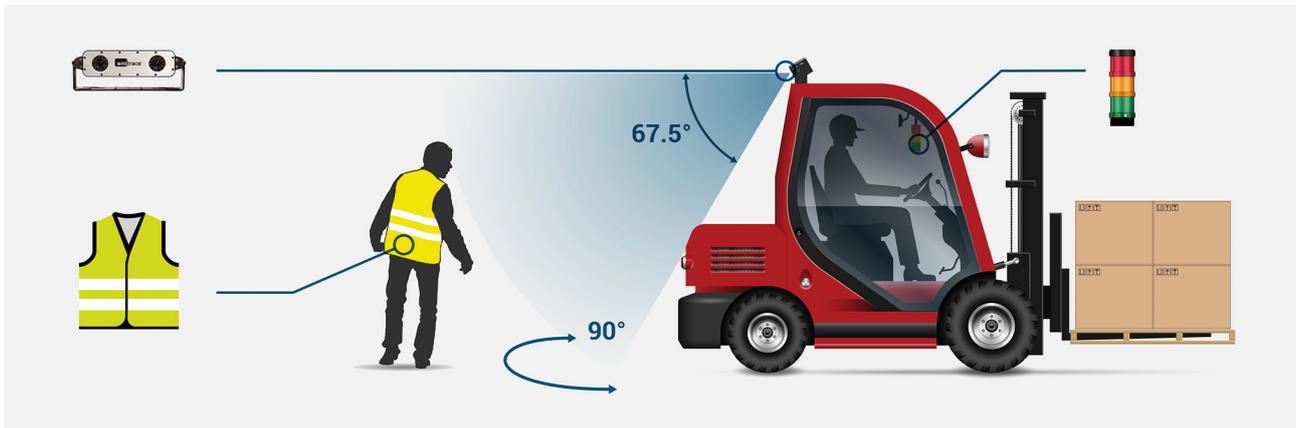### Embedded vision system detecting high-visibility clothing

Retenua developed a technology that detects the reflective stripes on protective workwear by means of an infrared camera. The emitrace driver-assistance system is the first real-life application for the patented process. It is mounted on industrial vehicles for blind spot monitoring and connected to a signal device in the driver's cabin.

The integrated VC Z stereo camera from Vision Components captures images using an NIR (near-infrared) flash. It detects reflectors, calculates the walking speed and 3D position of people, and triggers an alarm if an accident threatens. Accident frequency has been significantly reduced based on this innovation.

"To successfully launch such a product, is a difficult undertaking for a startup company. Vision Components gave us important tips on product design and helped us speedily produce a marketable system."

RAFAEL MOSBERGER, CEO OF RETENUA

RETENUA Intelligent Sensor Systems

emitrace™

The assets

Reliable, low-maintenance, cost-effective

- » Independent of lighting
- » Robust detection performance
- » Non-glare NIR flash
- » Plug & play device
- » Space-saving

- » Rugged
- » Easy to clean
- » Detection range 1 to 10 m
- » IP67/IP69K protective housing
- » Operation at -30 °C to +60 °C

Applications

Industrial vehicles

- » Mining
- » Logistics
- » Landfills, etc.

- » Indoor
- » Outdoor

- » Construction machinery
- » Forklifts
- » Baggage tugs, etc.

Our products

VC Z embedded stereo camera

The board camera features two remote sensor heads and a Xilinx Zynq SoC for stereo image processing. The fully integrated design without peripherals makes the solution both mechanically and functionally extremely robust. The compact, easy-to-integrate embedded vision system provides a flash trigger and a 1-Gbit Ethernet interface.

Software

The VC Z series' Linux operating system and the VC software libraries reduced the development effort. Our customer Retenua was able to design a plug & play product by combining them with its own C++ vision library and API.

vision components®