

## Probility



Source / Link: <https://probility.de/>

### Technology area:

- Artificial Intelligence
- Big Data
- Digital Twins
- IoT and IIoT
- Cybersecurity
- VR/AR
- Robotics
- Automation
- System Integration
- Smart Sensors
- Additive Manufacturing
- Other

### Type of good practice:

- Company
- Project
- Initiative
- Programme
- Other

### Target market segments:

- Discrete (smart) manufacturing
- Automotive
- Aerospace
- Metal processing
- Consumer goods
- Pharmaceuticals and chemistry
- Food and agriculture
- Health
- Textiles
- Others

### Summary:

Probility is a start-up that offers medium-sized and large companies an increase in work safety and efficiency in intralogistics processes. They achieve this through an optical AI sensor network that analyses the desired or entire work environment in real time and warns employees of impending collisions. The start-up currently offers their system as a package of 3 main parts. The scope varies depending on the area to be guarded. The system is based on decentralized installed optical AI sensors that enable real-time detection and location of people and objects while complying with data protection regulations. The determination of the position data makes it possible to warn the driver. In this way, the high number of accidents in internal traffic can be reduced. In addition, the evaluation of the data offers a wide range of possible applications, such as the analysis of danger areas where critical situations occur more frequently. This leads to an increased recognition of optimization potentials and, based on the data analyses, strategies for increasing efficiency in inland traffic are derived and implemented.

### Detailed description

No matter the training or the experience, employees in industrial areas are often in a hurry, distracted, tired or simply focused on their work and they no longer perceive everything that happens in their surroundings. Especially in the areas that are not visible. This, in turn, often leads to dangerous situations in which employees can be hurt by moving machinery or equipment because none of them was able to spot the other one. Such dangerous situations can be avoided with Probility's intelligent system, which detects such inconspicuous areas and warns the driver. For example, most forklifts have very limited

This publication reflects the views only of the author, and the Commission cannot be held responsible for any use which may be made of the information contained therein.

forward visibility – even when they are not loaded. A short moment is enough for a person to disappear in the driver's blind spot, resulting in a collision. Here again, our 3D sensor can recognise the person in advance and calculate their trajectory. Therefore, these situations can also be easily avoided by warning the drivers.

The system detects all persons and forklifts and recognises the potential risk of a collision. For the person who is not visible to the forklift driver, the system alerts and warns the forklift to stop. After the person is no longer in the driving path, the system gives permission to continue driving.

Currently the system consists of 3 components – ProSen, the server and ProDrive.

ProSen is the eyes and the brain of the system. By placing the system in working environment, companies give their working environment additional senses. The TPU Edge computer's processing power is specially designed for image processing and AI, which improves accuracy. In addition, the sensor is protected against external influences by IP 65.

The Server is the spinal cord of the system. Only one central contact point is required for the communication of the individual devices. Since it is very small, we can mount it at companies' desired location. Here, the incoming coordinates are fused in a matter of milliseconds and the signals are sent to the correct forklift truck. Since the data only consists of individual coordinates, the latency is very low and the scalability is very high.

ProDrive warns the driver of obstacles using visual and acoustic signals without blocking his view or distracting him. The calibration also shows the driver from which direction the obstacle, e.x. a person, is coming and how far away it is. Due to the almost non-existent latency and the very well-trained recognition algorithm, full confidence can be placed in the system, so that the driver can only concentrate on the load or the vehicle.

### **Beneficial Results**

Apart from the obvious benefits of an improved safety for the employees, the system also offers additional benefits to the company. For example, no additional devices are needed because the system works with optical signals, and the employees do not need to wear any other devices. Therefore, every person, whether employee or postman, is recognised and protected.

The system does not need to be charged and therefore, there is no need for constant charging of the devices or mindful handling of the beacons to be protected. The employees can hence carry out their work without worries.

Last but not least, by analysing the anonymous data, companies can identify potential for optimisation, such as walking or driving routes, and thus improve the processes.

**Access date:** 08/02/2022

**Provided by:** INI-Novation GmbH

This publication reflects the views only of the author, and the Commission cannot be held responsible for any use which may be made of the information contained therein.