Ondosense

Source / Link: https://ondosense.com/

Technology area:	Type of good practice:	Target market segments:
☐ Artificial Intelligence	☒ Company	☐ Discrete (smart) manufacturing
☐ Big Data	☐ Project	☒ Automotive
☐ Digital Twins	☐ Initiative	☒ Aerospace
☐ IoT and IIoT	☐ Programme	☒ Metal processing
☐ Cybersecurity	☐ Other	☒ Consumer goods
☐ VR/AR		☐ Pharmaceuticals and chemistry
☐ Robotics		☒ Food and agriculture
☐ Automation		☐ Health
☐ System Integration		☐ Textiles
☒ Smart Sensors		☐ Others
☐ Additive Manufacturing		
☐ Other		

Summary:

OndoSense realizes innovative radar sensor technology for a digitized industrial world. With IOT sensor solutions based on high-precision, robust radar technology and smart sensor software, OndoSense ensures customers get relevant data for the intelligent control and monitoring of production plants and machines. Whatever challenge their radar sensors are confronted with – be it dimension measurement, wear measurement or process automation: OndoSense sensor technology always stands for highest measuring precision and a wide application range. Even in cases where classic sensors and measuring methods are too inaccurate or fail. Their robust and compact OndoSense radar sensors are reliable even in the harshest environments.

One major application of their sensors is in logistics, and more precisely for avoiding collision between automated guided vehicle (AGVs). With the OndoSense sensor solution for reliable 3D collision avoidance, AGVs can operate with maximum reliability even in demanding environments or outdoors. The radar sensor also detects objects that protrude into the agv's driveway from above or below and uses special radar algorithms to detect people in the safety area. The OndoSense sensor technology records the AGV with high precision, which enables a flexible adjustment of the safety zone. This reduces the travel distance and increases productivity.

Detailed description

As mobile robots, Automatic Guided Vehicles (AGV) make a major contribution to automation and increased efficiency - for example in warehousing and logistics, in production but also in the health sector. High-performance sensors are required that deliver reliable results at all times in complex and difficult conditions. Otherwise, there is a risk of collisions with objects and people leading to unplanned downtime with costs of over USD 350 per second. With classic sensor technologies, collision-free navigation is only possible to a limited extent: Laser scanners usually only capture the environment horizontally and thus do not recognize potential obstacles that are below or above the scan plane. Inclined positions of the AGV and bumps on the road also limit the performance of the LiDAR sensors and represent further accident risks. Most laser, vision and ultrasonic sensors also struggle in harsh environments with dust, dirt, fog, smoke, heavy rain, extreme temperatures, flashes of light or strong vibrations.

With OndoSense IoT radar sensors, AGVs can detect objects with extreme reliability, even in the most demanding situations or outdoors. This even applies to environments with dirt, rain, fire, steam, very high or low temperatures, poor lighting conditions or strong vibrations. In addition, people can also be detected using special radar algorithms. Since the radar sensors, unlike image processing sensors, do not recognize individual persons, there are no data protection risks. Thanks to the large vertical opening angle of 110 degrees (elevation), the radar sensor also prevents collisions with objects that protrude into the route from below or above. This means that the safety zone can be adjusted e. g. to the height of the AGV. The OndoSense AGV radar also records the speed of the mobile transport robot with high precision without additional sensors. The advantage: The safety zone can be adapted directly and continuously to the driving speed and the calculated braking distance. This reduces the travel distance and increases productivity. The OndoSense radar sensor system also offers a high ease of maintenance: In contrast to LiDAR or vision sensors, there are no moving parts that are susceptible to repair or sensitive optics that need to be cleansed. The result: a long product service life and reliability.

Beneficial Results

Using OndoSense's 3D radar sensor for collision avoidance leads to a number of benefits, ranging from less collisions and machine downtime to more opportunities for automation, and to an overall improved working environment for people. The main benefits could be summarized as follows:

- Full 3D collision avoidance – detects very high and low objects in the safety area (110° elevation);
- Reliable in adverse environments – also suitable for the most difficult conditions (outdoor, etc.);
- Detection of human beings without recognizing individual persons: no data protection risks;
- Precise speed measurement – for an adaptive configuration of security zones.

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