Location-Aware Collision Warning For Forklifts and Pedestrians

EPS™ SafeTrack

L'Oréal Italy Case Study

Forklift-Pedestrian Collision Warning solution at L'Oréal in Italy.

Location-Aware approach to safety shows significant benefits compared to alternative solutions.

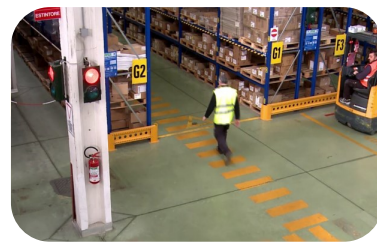Safety solution can be extended to enable fleet management, inventory tracking and operational oversight.

Blind Corner Protection

Collision Warning enabled by accurate vehicle position tracking.

Pedestrian Safety

Pedestrian position tracking detects danger situations enabling vehicle and area alarms.

Avoid False Alarms

Location-Aware solution avoids false alarms for nearby staff in safe locations.

Enable Higher Efficiency

Dynamic vehicle-tracking safety zone allows multiple vehicles per aisle.

Operator Safety

Safety for drivers also, as system detects when an operator leaves their vehicle.

Situational Awareness

Warehouse operators behind conveyer belt do not generate alarm for nearby forklift truck.

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Excellence in Safety! DELES Matic installs Traffic Collision Avoidance Assistance System based on Essensium's RTLS platform at L'Oréal S.p.a. Lainate.

June 17, 2014, Lainate Italy, DELES Matic, partner of Essensium NV, installs a Traffic Collision Avoidance Assistance System based on the EPS Real Time Location System (RTLS) at L'Oréal Lainate site.

Every Forklift truck and pedestrian on the site is accurately located and when 2 forklifts or a pedestrian and a forklift are at risk of colliding, a visual and audible alarm triggers the forklift drivers to slowdown and be vigilant. The system also controls the traffic lights where pedestrians cross and warning lights to identify whether someone is in an aisle. Knowing the whereabouts of people also allows to better analyze safety risks and adapt the site to be even more Safe!

"Preventing accidents on the work floor is one of the key concerns of L'Oréal, but this time we wanted to go a step further! ""*Excellence in Safety! is our aim, ...eliminating accidents is the Goal"*, says the Safety & Quality manager at L'Oréal Italia. *"With more than 1700 days of no incidents at this point we want to set a new standard and ensure 100% safety"*

At the beginning of 2013, L'Oréal Italy was looking for a new state of the art Collision Avoidance Assistance system. They had already looked into several existing solutions but none could satisfy their wishes. *"Vision based systems are OK but can not see what is behind a corner or a loaded pallet, while simple warning lights and audible tones do help somewhat but are not eliminating the potential collisions."* Since there was nothing on the market which addressed both the forklift trucks and the pedestrians in an efficient way, they asked DELES Matic to come up with a solution.

Riccardo Chersoni, Director of DELES MATIC, part of the DELES group, took on the challenge of designing a new solution. Having a lot of experience with RFID and automation, he looked at the available RTLS platforms that would be accurate enough, easy to install and economically viable. It proved to be more challenging than thought initially; the system needs to give the position of a forklift accurately, but also needs to provide this information timely, in order to ensure the warning of potential collision is fast enough. Also, the integration with alarm lights and traffic lights on the site needed to be ensured. Similarly, the amount of infrastructure and cabling was another challenge. They ended up changing their initial choice of RTLS platform after some unsuccessful testing and after some evaluation arrived at Essensium.

Essensium, a Belgian company and spin off of the IMEC research institute had recently released their own ASIC with second generation EPS technology combining low

power, high accuracy and long range localization capabilities. Being active with similar Collision Avoidance Assistance projects in the Antwerp port area, detecting nearby Straddle Carriers and pedestrians, they took on the challenge to equip the Lainate L'Oréal site.

A site survey and tests soon proved that the implementation would require some additional development. Critical to a successful implementation was the interpretation of potential collisions and not generating false alarms when there is no chance to collide. Frederic Stubbe , CTO of Essensium explains:

" Generating an alert when there is another Forklift or a pedestrian 5m away is easy, but knowing that they are both in a different aisle, or when a bull bar is separating them, makes the difference between generating an alert or not. Our system did have to interpret these conditions, and as such only generate an alert when needed. An effort, which we gladly took on, knowing our technology is extremely well suited. Now we see a strong demand from the market, including from MHE vendors, which have been looking at ways to address the needs in the market. With L'Oréal *being a major brand and having an excellent reputation, it was a no brainer to invest and make our solution fit their needs."*

The Lainate site, which has somewhat an example role, has always served as a trial site for new processes and technologies and has a

track record when it comes to safety and quality. Now it has gone beyond the traditional safety and can be proud to say they have one of the world's first systems that go this far in Collision prevention. A Health & Safety auditor from an external certification company confirmed this, after recently visiting the site for the yearly audit.

The first priority of L'Oréal Italia was to use the data gathered by the system to improve safety even further. *"When people are being followed to analyse their safety behavior they do not act naturally, they suffer from* **the whitecoat effect***"* L'Oréal stated. *"With the data collected from the system and some data-analysis tools, we will identify potential risks by having statistically enough data to enable some data mining tools. During this process we ensure privacy of all the people on the site is guaranteed, we are not interested in pointing fingers but preserving them!"*

SafeTrack, Essensium's Collision Avoidance Assistance System proves effectively to enable more than just detecting potential Collisions. By knowing what, and where something is, it can populate the WMS or allow more efficient flow of goods. In addition, the data gathered proves to be a valuable source of information to perform some Business Intelligence exercises, not only limited to safety.

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SafeTrack: Enabling Collision Warning Systems for Vehicles and Pedestrians.

The SafeTrack™ Safety Assistance System uses Essensium's EPS system for a combination of vehicle position detection and inter-vehicle ranging to provide a multi-layer approach to collision avoidance with built-in redundancy. The site operator can specify ´Safe Operating Distances´ for different vehicles and different locations. An audible alarm and visual indicator inside the cabin warns the vehicle operators when they are violating the Safe Operating Distances. The system brings significant benefits in terms of staff safety and also increased productivity due to the ability to operate in more dense configurations.

The addition of Personnel Tags further increases the relevance of the solution, by warning the vehicle operators when a pedestrian is detected within or close to the vehicle's operating area.

Safety is productivity. The reduction of collision or near-miss incidents between handling equipment increases the safety of the work environment. And a safe workplace avoids downtime due to incidents and thus increases productivity.

About L'Oréal

L'Oréal, the world's leading beauty company, has catered to all forms of beauty in the world for over 100 years and has built an unrivalled portfolio of 28 international, diverse and complementary brands. With sales amounting to 22.5 billion euros in 2012, L'Oréal employs 72,600 people worldwide. In 2013, the Ethisphere Institute, a leading international think-tank for business ethics, corporate social responsibility and sustainability, recognized L'Oréal as one of the World's Most Ethical Companies. This is the fourth time that L'Oréal has received this distinction. www.loreal.com

About DELES

DELES Group offers its customers innovative packaging solutions across a range of products that can minimize material usage, increase productivity, reduce storage space and costs protecting your products optimally. The emphasis on innovation, product quality care and the research explains the existing of **DELES MATIC Division ,** a partner for our customers, able to provide an exclusive and customized service.

About Essensium NV

Essensium is an Imec Spin-off specialized in low power wireless and embedded software and hardware solutions. Starting as a fabless semiconductor company, along with a strong embedded software division, Essensium provided System-On-Chip products and design and has developed the Essensium Positioning System (EPS), a patented Real Time Location System (RTLS) platform that is unique for its high accuracy, long range and low power. This platform targets various logistics applications as well as people tracking and vehicle tracking in secured environments. For more information on Essensium, please visit:

http://www.essensium.com