



## **A study by the European Commission JRC confirms the benefits of the Lynred/Umicore thermal technology for the protection of pedestrians in night traffic situations**

*Olen, Belgium and Grenoble France* 14<sup>th</sup> September 2023 - The joint efforts of Lynred and Umicore in co-developing a cost-compatible uncooled thermal imaging solution to enhance next-generation PAEB (Pedestrian Autonomous Emergency Braking), have reached a significant breakthrough, underpinned by the affirmative findings from the Joint Research Centre (JRC) – the European Commission's in-house scientific service whose mission is to provide independent, evidence-based knowledge and science, to support EU policies to positively impact society.

This milestone is a continuation of the earlier EU-funded “tHERmaL vision AUgmented awarenesS” project, the initial phase of the thermal sensing solution aimed at reducing pedestrian accidents in challenging visibility conditions. As the solution progresses to the empirical assessment stage, focusing on validating the thermal sensor's effectiveness, Lynred and Umicore are eager to present the encouraging findings from JRC's review at AutoSens on September 20<sup>th</sup>, Mezzanine Stage.

The importance of enhancing safety systems in vehicles becomes evident with the EU's Vision Zero<sup>1</sup> strategy, aiming to reduce fatalities by 50% by 2030 and achieve zero fatalities by 2050.

Today, global road traffic accidents still claim roughly 1.3 million<sup>2</sup> lives annually, with over 50% being vulnerable road users like pedestrians, motorcyclists, and cyclists. About 75% of these fatalities occur in conditions of poor visibility. In 2021, the European Union reported 19,800 road-related deaths, and more than half of pedestrian fatalities transpired between 4pm and midnight<sup>3</sup>. An AAA study revealed that the majority of current AEB systems demonstrated inconsistency and ineffectiveness during nighttime conditions<sup>4</sup>.

The collaboration's innovative solution, built around Lynred's compact QVGA(320x240) & VGA (640x480 resolution) thermal sensors, is coupled with Umicore's Tessella<sup>®</sup> chalcogenide wafer-level lens technologies. This potent combination offers a cost-effective and promising answer to road safety challenges for next-generation PAEB systems. For the purpose of the EU JRC testing campaign, the thermal camera was combined with an in-house AI-powered PAEB system detection algorithm for object classification.

“One of our objectives is to provide Tier1 with the critical building blocks to produce a thermal camera system under €100 that can connect to the AEB system. By halving the cost of thermal image sensors used by cars makers today, they will have an affordable thermal sensor solution to enable them to comply to NHTSA rulemaking more readily across all car ranges,” said Sebastien Tinnes, Global Market Leader at Lynred.





From a technical perspective, the positive effect of the thermal imaging solution is confirmed by the successful outcomes included in JRC's assessment. The study was carried out at the JRC Ispra site both during winter and summer temperatures and both in rural and urban environments. Findings reveal that the thermal sensor demonstrated consistent efficiency in detection up to distances of 150 meters during day and night, in contrast with the deteriorated performance in nighttime conditions of the reference state of the art benchmark vehicle equipped with a visible perception system. This underlines the applicability of thermal cameras for preventing pedestrian collisions especially during overcast conditions and during the night.

"Thanks to the collaboration with Lynred and the validation from JRC, Umicore has been able to contribute to the future thermal imaging solutions. This collaboration has helped us improve VRU detection performance, simplify optical assembly, and make significant reductions in system costs. Importantly, it's a step toward enhancing driver assistance safety during night time and adverse weather conditions." said Mikael Frenkian, Business Line Managers IR Solutions at Umicore.

Lynred and Umicore are excited to present their transformative thermal imaging solution in a real life setup at the AutoSens conference (Sept 19-20) at booth nr. 40. With its potential to save lives across all visibility conditions, this promising solution echoes the sentiment that, in the future, it will transition from being "Once a Luxury" to becoming an indispensable "Today a Necessity."

1. [Next steps towards 'Vision Zero'](#)
2. [WHO: Road traffic injuries](#)
3. [Source: CARE \(EU Road accidents database\) and European Commission estimates](#)
4. [AAA Research Report Pedestrian Detection \(P.46\)](#)





### About Umicore

Umicore is a leading circular materials technology company with extensive expertise in the fields of material science, chemistry and metallurgy. Its overriding goal of sustainable value creation is based on the ambition to develop, produce and recycle materials in a way that fulfils our mission: "materials for a better life." This is why it is now more than ever determined to leverage its unique position and mutually reinforcing portfolio of activities to accelerate the global transformation of mobility, respond to the growing need for advanced materials, and contribute to the pursuit of a global circular economy. The company employs 11,000+ staff, globally. It has 46 production sites and 15 R&D/technical centers.

[www.umicore.com](http://www.umicore.com)

### About Lynred

Lynred and its subsidiaries, Lynred USA and Lynred Asia-Pacific, are global leaders in designing and manufacturing high quality infrared technologies for aerospace, defense and commercial markets. It has a vast portfolio of infrared detectors that covers the entire electromagnetic spectrum from near to very far infrared. The Group's products are at the center of multiple military programs and applications. Its IR detectors are the key component of many top brands in commercial thermal imaging equipment sold across Europe, Asia and North America. Lynred is the leading European manufacturer for IR detectors deployed in space.

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