

BUSINESS CASE

Integrated pedestrian detection on loaders

efa
Industrial Parts & Equipment



"Our team initially thought about ultrasonic sensors, as it looked like the simplest solution to integrate in a short period of time. When efa offered their **collision avoidance solution** and we tested it successfully, we went further into the integration process.

We've managed to test, integrate (software and mechanical integration) and roll out the solution in less than 6 months !"

◆ The Client

One of the world's largest manufacturers of excavators, loaders and dumpers looking for a collision avoidance system.

◆ The Problem

Both safety regulation and end-user awareness are pushing manufacturers to increase their product safety. This can be done during the first machine assembly period or after-market.

End-users demand more and more safety add-ons on their standard machines. In such cases, time to market capability is a key parameter to success.

◆ The Challenge

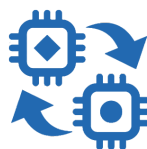
The loader manufacturer needed a proven collision avoidance solution with enough flexibility to simplify the integration into an existing machine.

Its requirements were as follows :

- **Collision avoidance system** for humans
- **Communication** with the machine
- **10m-detection** range
- **Warning solution** for both the machine driver in the cabin and the pedestrian
- **Adaptable** to the existing machine



Whether humans are walking, kneeling or even remain partially hidden, the AI camera detects human shapes.



A CAN interface with the machine's PLC has been developed.



Thanks to its algorithm, the camera detects when the lens is covered with mud.



Integration of 2DKIT Pedestrian Detection

- ◆ Preventing collisions between machinery and pedestrians
- ◆ Integrated solution with communication of alerts via CAN
- ◆ Intelligent detection, without unnecessary alerts
- ◆ IP69K camera adapted to public works and handling equipment

◆ The Solution

efa provided and adapted its most efficient 2DKit, which achieves :

- 0 to 12m **human detection**
- **Connectivity via CAN bus** with manufacturer's PLC
- **Malfunction detection** when the camera is obfuscated with mud
- **Detection of the zone** where humans are located allowing the PLC to handle detection in different ways, depending on distance.

◆ The Result

efa's customer has been able **to conquer new markets** with a machine that offers a **unique value proposition on the market**.

The time to market, including the solution's proof of concept, R&D and quality validation was less than 6 months.

