

ALIS SYSTEM EXAMPLES OF USE



ALIS Shield



PROTECTED SUBJECT AND TYPES OF NOTIFICATION



employee/visitor

vibration, visual, acoustic, optoacoustic



material handling equipment (MHE)

visual, acoustic, optoacoustic, speed adjustment

FUNCTIONALITY OPTIONS

- autonomous deceleration of MHE against other MHE or in zones
- autonomous deceleration of MHE against pedestrians
- presetting of maximum speed in different zones
- turning on LED projectors triggered by movement of MHE
- controlling of electric devices (e.g. gates, doors) by MHE movement

USED TECHNOLOGIES

- UWB, WiFi, BLE, active RFID
- image processing technology using neural networks

USE OF THE SYSTEM







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COMBINATION & COMPATIBILITY

VEHICAL TAG

Vehical tag features 3 possible variants (AWL-V-1, AWL-V-2, AWL-V-3 see table A for more), based on the degree of compatibility with other system features. The selection of the suitable tag depends on the size of the fleet and required degree of safety.

PERSONAL TAG

Personal tag is available as a card, bracelet or a tag that can be placed on a safety helmet or belt. The bracelet version is also available in **ATEX certified** variant - suitable for explosive environments.

READER

The selection of the reading device (READER) variant depends on the type of forklift tag and required functionalities. READERS come in single-antenna and double-antenna versions.

| | VEHICAL TAG | | | |
|----------------------------------|-------------|---------|---------|--|
| FUNCTIONALITY | AWL-V-1 | AWL-V-2 | AWL-V-3 | |
| activation of electric devices | • | • | • | |
| deceleration in zones | | • | • | |
| deceleration against pedestrians | | | • | |
| Tab. A | | | | |











DECELERATION FORKLIFT VS. FORKLIFT

Autonomous deceleration of MHE to the minimum possible speed in order to prevent a collision. Notification of drivers inside the cabin by opto-acoustic signalization.



DECELERATION IN CRITICAL ZONE

Autonomous deceleration to required speed upon entering a critical zone with subsequent acceleration to the original speed.



DECELERATION IN ZONES

Autonomous deceleration in zones based on the direction of movement to prevent collision of MHE and pedestrians/other MHE in frequented spots (e.g. production).



DECELERATION AGAINST PEDESTRIAN

Autonomous reduction of speed of MHE when dangerously close to pedestrians. Active notification of pedestrians using personal tag and drivers by using opto-acoustic signalization inside the cabine.



PEDESTRIAN NOTIFICATION early notification of pedestrians on possible collision with MHE using vibrations or sound



VEHICLE TAG

ALIS Visualization

MAIN ADVANTAGES OF LED TECHNOLOGY



safety symbols

signs in various colours, shapes and sizes

signs around suspended load projection of safety zone around suspended load



operational blindness elimination of operational blindness

FUNCTIONALITY OPTIONS

- projection of safety signs triggered by motion (employee/material handling equipment) = elimination of operational blindness
- activation of LED projectors using sensors
- projection of large signs (e.g. pedestrian crossing)
- interconnectability with ALIS Shield or external PLC

USED TECHNOLOGY

LED technology

PROJECTION AND ACTIVATION



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non-stop projection 24/7

motion-activated pedestrian / material handling equipment

pulsating/blinking pulsating safety sign





INTERCONNECTABILITY WITH SENSORS

COMPATIBLE SENSORS

- optical sensor
- motion sensor
- magnetic sensor
- infrared sensor
- etc.

COLLECTION OF LED PROJECTORS

ACTIVE COOLING

PASIVE COOLING





made in the Czech Republic humidity and dust protection up to IP67

LED chip life up to 40,000 hours

SAFETY GLASS





IS0



UV and heat resistant

standard and custom symbols









ILLUMINATION OF CARRIED LOADS

Projection of circular, rectangular or lengthwise signs in hazardous zones around carried loads using LED projector on crane.



SIGN DIAMETER sign diameter up to 5 m per one LED projector



BASED ON LOAD SIZE size and shape of final sign based on the size of carried load





LED PROJECTOR

READER



PROJECTOR ACTIVATION USING VEHICAL TAG

Projection of safety signs triggered by motion of MHE based on wireless communication between vehical tag and reading device on LED projector.



RADIO SIGNAL activation even outside activator's field of view



ELECTRONIC DEVICES activation of various electronic devices (e.g gates, sirens, doors, etc.)











LED PROJECTOR

READER

VEHICLE TAG

PROJECTOR ACTIVATION USING SENSORS

Activation of LED projector based on a signal from micro-wave sensor detecting direction of movement and size of given object. The solution can also be installed inside a parabolic mirror.







TRACKING A MONITORING

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|----|--|
| | |
| 75 | |
| 00 | |

employees

movement, physical condition, accurate tracking



material handling equipment

movement, use, technical condition, position



goods movement, accurate tracking

FUNCTIONALITY OPTIONS

- monitoring of so called dead man position (not moving person)
- creation of statistics on use of MHE and cranes
- early notification on service operations to the designated employee
- tracking and monitoring of movement of employees, MHE and goods
- records of MHE accidents
- connectable with sensors (heat, dangerous gases, etc.)

USED TECHNOLOGY

• UWB (Ultra Wide Band) - active RFID

ADVANTAGES OF RTLS

- 1. effective operation planning in real-time
- 2. elimination of wastage and idle times
- 3. background data for calculations of OEE and exploitability statistics
- 4. S.O.S. button for employees and alarm management
- 5. effective planning of maintenance and service operations on MHE
- collection of background data for operation optimization (heat maps, spaghetti diagrams, etc.)
 identification of critical spots



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DETACHED WORK PLACE

Monitoring the "dead man" position in detached work places using personal tags. Model example includes S.O.S. button (call for quick help) and alert management to visualize the position of employee in trouble within localized area.



ACCURACY UP TO 30 CM visualization of employee in trouble on plant plan



PHYSICAL CONDITION monitoring of employee's physical condition (heart rate, stress)



HEALTH HISTORY faster provision of first aid upon doctor's arrival



E-MAIL/SMS notification of designated employee by e-mail or sms



PERSONAL TAG

READER



SOFTWARE, SERVER



TRACKING AND MONITORING OF EMPLOYEES, MATERIAL HANDLING EQUIPMENT AND GOODS

Real-time shift organization based on big data collection of movement and positions of employees, MHE and goods. The solution can be upgraded by monitoring hazardous gases and other physical quantities. Early and active notification on service operations of equipment and its technical condition.

Records of operating hours of equipment, monitoring of crane movement, and path usability. Collection of big data on the overall use of MHE to calculate KPI and to plan maintenance and service.



FIRST CLASS IN SAFETY BE PART OF IT

