university science park
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Intelligent platform for internal logistics with the possibility of quick reconfiguration

The technology is used to deliver a complex intelligent internal logistics. This system enables holonic intelligent logistics research solutions with the possibility of quick reconfiguration.

System consists of automatic logistics tractors, which serve as a basic research platform for research of holonic intelligent logistics solutions, monitoring system, control system and peripherals for automatic material distribution.

The AGV (automated guided vehicle) system enables to fully automate trailers with cargo according to a predefined track for assistance of logistics tractors in industrial halls. The system increases automation and productivity of logistics and reduce logistics costs.

The basic parts of the AGV system are:

1. AGV unattended logistics trailer
2. AGV MCS - system for monitoring and control
3. AGV periphery devices
4. AGV accessories
5. AGV OEE

Benefits of the AGV system:

- Increasing automation in logistics
- Increasing productivity in logistics
- Reducing logistics costs
- Just-in-time material delivery
- Unattended operation

AGV system functions:

- Automatic monitoring
- Automatic steering
- Automatic charging
- Automatic peripherals
- Automatic cargo transfer

Basic technical information:

- certificate
- Modular design
- Wireless control

- Remote control

Technology for intelligent manufacturing systems infrastructure, including comprehensive software support

The technology is used for a comprehensive infrastructure for intelligent manufacturing system (IMS), comprehensive software IVS support, including embedded automation called „High speed, PLC failsafe" and controls, peripherals, panels operator, RFID modules and extension modules

The system also includes security modules, reliability and simulation development environment for analysis and evaluation of the level of safety and reliability of technical systems.

Technology for analytical research techniques, materials, elements, and sensors

This technology analyses high frequency Barkhausen noise, which can detect surface type errors, uneven heat treatment of decarburization or comprehensive assessment of surface integrity. Barkhausen noise is used in industrial conditions at non-destructive surface monitoring of components made from ferromagnetic materials (mainly steel),

Areas of application of Barkhausen noise in practice:

- parts after machining (mainly grinding) and mechanical strengthening of surfaces),
- thermal or chemical components - heat treatment (hardening, nitriding, etc.),
- components subjected to a degradation process (fatigue, corrosion, wear),
- to a limited extent for plastic deformation surfaces (forging, bending, etc.) and welding

This technology is also composed of a multiparameter micromagnetic system that can measure magnetic parameters of body surfaces from ferromagnetic materials and tangential intensity magnetic field determining coercivity and implementation of amplitude and phase analysis.

The technology is used to research analytical materials techniques, elements, and sensors.