



Fraunhofer
IML

FRAUNHOFER INSTITUTE FOR MATERIAL FLOW AND LOGISTICS IML

AUTOMATION AND EMBEDDED SYSTEMS





INNOVATIVE AUTOMATION

The In-House Material Flow is the vital line in warehousing and production. Efficient transports whether fork lift carriers, shuttles, autonomous guided vehicles or automated conveyors, demand appropriate technologies. Openness for innovation enables the change and future trends of concepts as well as technologies and ensures sustainability of systems. Our department, Automation and Embedded Systems, implements solutions in industrial environments. Complementary we drive innovation by corporation in research projects and interconnect industry with applied research.

Our Services

We accompany you starting from the analysis and definition of requirements up to the first-time operation of your facility. Our substantial scope of performance mirrors the diverse application of automation technology regarding their features and qualities.

Technology Advisory Service

We support you in the process of finding the most suitable technology and components for your installation. The composition of adequate combination of sensor systems and actuating elements, AutoID-Systems and control engineering is our field of competence.

Conceptual Development and Implementation

Trust our competence from technology selection to realisation. We plan and implement innovative sensors and actuators for your systems and develop individual software solutions. Whether it concerns Image Processing, Decentralised Control or the Design of Highly Integrated Automation Solutions – we are the first to turn to.

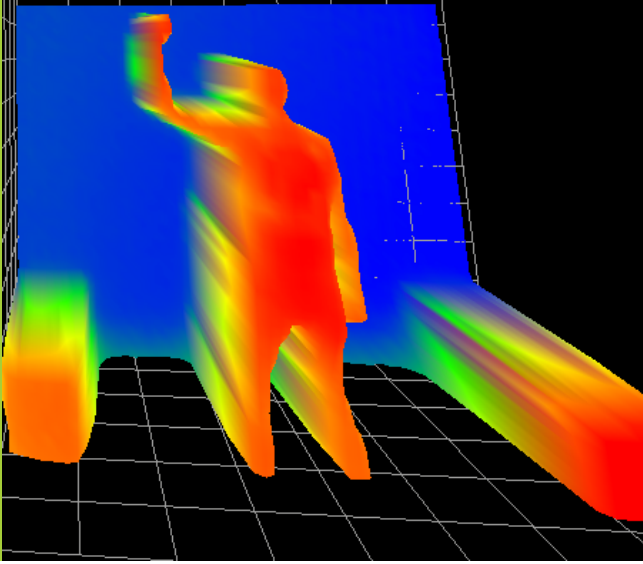
Fields of Application

Automation Concepts

Automation is diverse and flexible – we develop sustainable concepts and create investment protection for your future. We are capable of developing an individual realisation concept for your facility and guide you along the implementation phase, driven by our substantiated knowledge and long term project experience.

Embedded Systems

The design of integrated, embedded systems – from circuit board design to software development for microcontrollers and digital signal processors – creates small economic solutions for automation. By the use of newest technologies we develop miniaturised, lean systems and hence generating competitive advantages. Innovations, like the development of energy autarkic devices by the help of MicroEnergy-Harvesting also belong to our service portfolio.



Industrial Control Systems

We offer platform and manufacturer independent design and development of control software for your automated systems while using programmable logic controller and industrial personal computer. Our professional team realises the successful fit, integration and extension of the software of consisting facilities in industry and research.

AutoID – Consulting and Integration

With us you will always find the most appropriate AutoID technology. Whether RFID, bar code or data matrix – we identify suitable technologies for your material handling system and include points like technical feasibility, reliability and sustainability. Finally, we integrate the most suitable technology for your system and IT.

Decentralised Control

Decentralised control systems have high flexibility and changeability, since they can be extended without software modification. For this reason the Internet.of.Things has become reality – by the integration of RFID, sensor nodes and decentralised control architectures we can control your material handling system and create sustainable structures.

Computer Vision

Unit load counting, object detection or quality assurance – we develop on demand computer vision based solutions applying laser range finders, 2D- and 3D-camera systems to raise efficiency of your processes.

Control Station and Monitoring

For the efficient flow of goods you can connect arbitrary warehouse management systems, transport control systems and enterprise resource systems to our cross-platform control stand software. Decentralised material handling systems become transparent using our monitoring system with integrated service oriented architecture support.

Sensor Fusion

Control requires positioning which cannot be acquired by a single sensor in many cases. Our novel localisation methods based on sensor fusion of optical and inertial sensors lead to precise determination of the position of autonomous or swarming automated transport vehicles.

Optimisation of Energy Consumption

Supported by simulation of material handling systems and measurements of existing facilities in our OpenEnergy-Lab we can state reliable, quantitative and qualitative predictions concerning minimisation of energy costs in your facility, even at the stage of planning. Furthermore, sustainable efficiency analysis as well as on site analysis is an integral part of our service.

Follow the QR-Code to our internet page



