TECHNOLOGIES FOR THE PRODUCTION OF THE FUTURE

INNOVATIVE MANUFACTURING AND PROCESS SOLUTIONS FOR THE PRODUCTS OF TOMORROW.

WE AUTOMATE YOUR WORLD
MAKING BIG DATA SMART

DIGITAL SOLUTIONS

Automation and digitalization interact to form the future driver for industrial value creation. With the I4.0 solutions of the PIA Industrial App Suite, PIA can provide its customers with the technology for significant productivity increases and enhance their competitiveness in the dynamically networked markets of the future. On the other hand, PIA also uses this evolution internally to drive better engineering based on real-time data.

PIA’s App Suite provides comprehensive functionalities for production, maintenance and quality managers as well as professionals to meet the challenges of plant operation and optimization.

THE 3RD DIMENSION OF PLANNING

3D- LAYOUT & - SIMULATION

PIA has been working for many years on the 3D layout of both line parts and entire plants. The advantages over 2D models are obvious. With the availability of the third dimension and the possibility to check robot accessibilities, concept discussions with the customer become less abstract. An additional factor is becoming increasingly relevant: The creation of simulations and the resulting option of virtual reality (VR) applications.

3D simulation is a process of creating a fully functioning digital model of a real system. Benefits include the ability to make interactive adjustments, instant visualization of processes, clear presentation of results, and support for decision-making through demonstrable simulations. In the case of robot simulation, there is an additional advantage: the simulation is the basis of the basic program, i.e., the positions of the simulation can be reused within the real system.

The 3D model can reproduce, in detail, a specific area or even the complete production system on the computer. Alternatives in design and planning can be compared as well as the risk-free investigation of different process scenarios. This allows processes to be optimized and costs to be reduced.

From the quotation phase, through the engineering process, to final acceptance and maintenance - the use of 3D simulation and virtual reality runs through the entire product development cycle at PIA. This cycle, which also includes development work to enable workflow across all project phases, makes PIA unique. In addition, a proprietary layout library guarantees fast and efficient implementation of the 3D model.
**AUGMENTED VISION**

**FOR THE PRODUCTION OF THE FUTURE**

**MAN & TECHNOLOGY HAND IN HAND**

**ROBOTICS & COBOTICS**

Today, modern factory planning is hardly conceivable without robots. They optimize production for even the most highly complex tasks by increasing output and reducing operating and personnel costs.

Whether cycle times are less than 10 seconds, payloads of up to 400 kg, use in clean rooms or collaborative robots - PIA has the know-how of a wide range of robot systems and all current manufacturers. We develop our own programming standards and respond to our customers' requirements. PIA's flexible robot cells are not only applicable in mass production, but allow for increased profitability in small series as well.

**DIGITAL PLANT EXPERIENCE**

**VIRTUAL REALITY**

The potential of virtual reality (VR) lies primarily in the fact that complex automation contexts can be mastered more easily because machines and plants can be experienced live thanks to a digital image. PIA has been using VR as an effective tool in engineering for a number of years. One example is ergonomics testing: if the acceptance test is carried out directly on the 3D model using VR goggles, the time required is drastically reduced due to the very high level of detail that can be achieved with the model. The entire plant is displayed in a concentrated manner within a few m² and any changes can be implemented quickly and easily. With the help of VR, the customer sees and experiences exactly what he ultimately receives from PIA.

**FLEXIBLE TRANSFER SYSTEMS**

**AUTONOMOUS MOBILE ROBOTS**

For tomorrow's products, transfer systems must be flexible. Depending on customer requirements, PIA's portfolio ranges from rigidly interlinked systems to manual assembly carts and in-house development of autonomous moving transport systems. Particularly for the production of e-mobility components, PIA has developed the concept of partially automated and flexibly interlinked assembly cells. These result in agile and future-proof system, which prepares the integration of further units and enables variable employee utilization.

The use of autonomous mobile robots (AMR) can be optimally adapted to the plant environment. Further advantages: AMR as a mobile workpiece carrier or workstation; flexibility in layout design, size, payload (up to 1000 kg) and workpiece-specific load handling device; free laser navigation as a standard; inductive fast loading.

**BENEFITS OF VR APPLICATIONS**

- Machines, stations and complete plants become „tangible.”
- Sequences of steps can be learned.
- "Human cycle times" can be checked during the planning phase.
- Ergonomics can be checked as early as the planning phase (human engineering); this saves up to 3 weeks of time.
- Process verification via "interact."
- Offline training for employees and operators (before/during operation of a real plant)

**STÄUBLI AUTHORIZED PARTNER**

**DUALIS SOLUTION PARTNER**

**FANUC AUTHORIZED SYSTEM INTEGRATOR**

**ROBOTICS INDUSTRY ASSOCIATION MEMBER**

**SIEMENS SOLUTION PARTNER**