

S.I.E HMI Modular System reduces Time-to-Market significantly

The core competence of device manufacturers is not generally in the development of HMI units. This device module is, however, an essential interface to the user. The quality requirements are generally high in this industry. In addition to functionality and reliability, usability and design play important roles.

Exactly for this kind of challenge, System Industrie Electronic GmbH (S.I.E) from the Austrian town of Lustenau has developed an HMI modular system consisting of hardware and software modules, which reduces the development risk and costs significantly for its customers and also reduces the time-to-market considerably. For this purpose, S.I.E uses a hardware and software platform that utilizes diverse variants that have already been validated but at the same time allows for customer-specific modifications.

The hardware modules include the controller board, interface board and display adapter board with different computing capabilities as well as a selection of different touch

inputs and displays. Various interfaces provide optimal connectivity and flexibility.

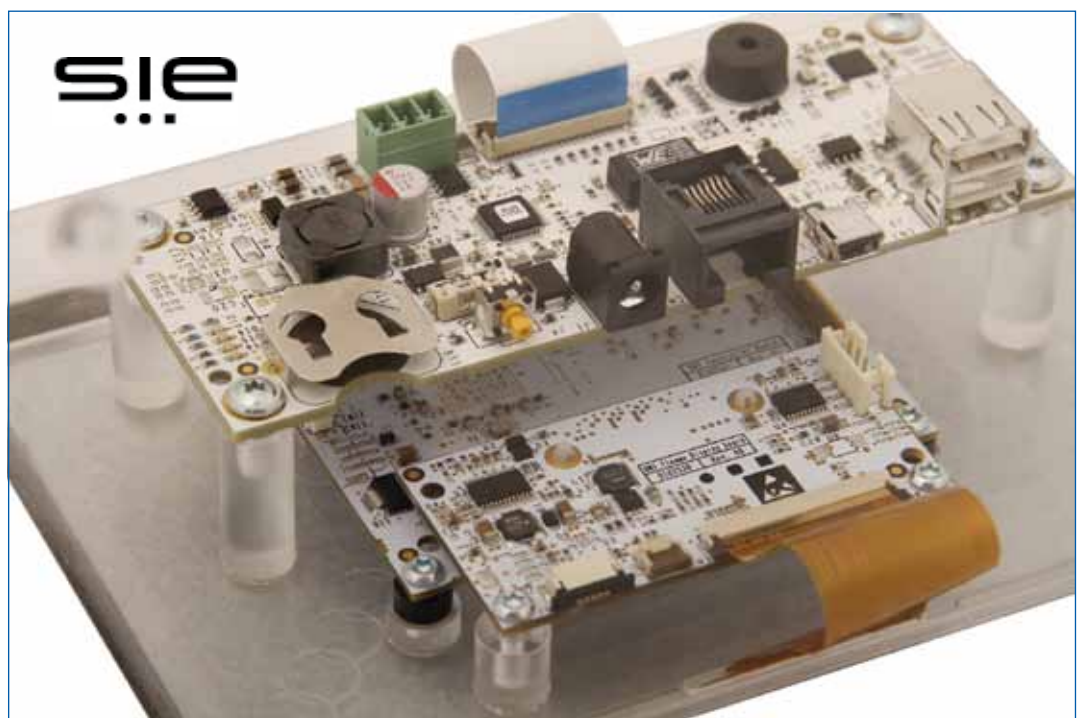
An embedded Linux operating system that can be validated and a framework for the GUI design form the basis for customer-specific solutions. Customers can test these components using an evaluation kit.

Once the feasibility of the project has been proven, S.I.E supports its customers all the way to product manufacture. This includes the integration of the HMI module into the actual device control, right up to the definition of the overall system architecture. In the user-friendly and error-avoiding design of the GUI, S.I.E can rely on its considerable experience and previously developed modules.

S.I.E covers its widely diversified hardware and software specializations with its own employees. External partners also contribute to the projects with their specialist knowledge. emlix GmbH was given the task of developing the embedded Linux platform, a hardware abstraction layer and an update concept. All the components are maintained and further optimized by S.I.E and emlix together.

The build and software management system e2factory from emlix, which fulfils the typical requirements of the FDA in the area of medicine and pharmacology, provides a standardized build process and enables location-independent

The hardware of the S.I.E HMI modular system consists of the controller board, the interface board and the display adapter board as well as touchscreen and displays. The tried-and-tested hardware and software modules can be adapted according to specific customer requirements.



working cooperation between S.I.E and emlix, and also the S.I.E customer if necessary.

e2factory also takes care of validatable software change management (tracking & tracing) and provides the basis for simplified certification. Nevertheless, the customer remains independent of S.I.E and emlix.

As the majority of the operating system components are obtained from directly upstream, i.e. the Linux community, there is no danger of distribution lock-in. This facilitates economical maintenance and further development over the product life cycle for S.I.E customers.

The hardware abstraction layer (HAL) allows for the transparent integration of a wide variety of periphery modules and thus supports the platform approach, which can be integrated openly and simply in the respective device context.



The S.I.E HMI modular system is already successfully in use in the products of many customers, especially from the areas of medical technology, analysis, biotechnology and laboratory equipment.

„In the area of software, emlix is a flexible and reliable partner and we profit from its extensive experience in the areas of build automation and software change management at Linux operating system level. We are impressed with the know-how and commitment of the company emlix.“ (Markus Dillinger, S.I.E, Head of R&D)

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Minimizing Project Risk

One of the products for which the S.I.E HMI modular system forms the basis is a device for performing quick blood tests for emergency medical stations – for example when a heart attack is suspected. In this case, S.I.E is the development partner of a medical technology company that wants to develop its patented measurement method from prototypes into a device that is ready for series production. One essential factor for the joint project is the combination of hardware, software, GUI and total system development competence at S.I.E. Another is the availability of the tried-and-tested HMI hardware and software platform, which allows the project risk to be significantly reduced.

On the way to series production, it is intended to further simplify the handling. The control board as well as the display and the touch input can be taken over without changes. The interface board of the HMI modular system will receive product-specific extensions, for example through the integration of a barcode reader, which can read all of the patient data into the device from a label. The connection to the control unit as well as further sensors and actuators also needs to be finalized.

emlix is supporting S.I.E with the necessary adaptations at operating system level. Knowledge of the system enables extensions to be realized rapidly. Standardized development processes and efficient software change management make sure that every stage is documented reproducibly for the approval procedure.

Further Information:
<http://www.sie.at>