



Ultratronik & Ersä

HMI Competence Centre in Gilching near Munich – where all the strands in the UX Group come together.

Touching Tomorrow with Human Machine Interfaces

Today, the UX Group with the companies Ultratronik GmbH, Ultratronik Vertriebs GmbH and Imago Design GmbH, and the U-Experten brand, can look back on over 40 years of embedded electronics expertise. In interdisciplinary cooperation between design, development, production and distribution, the UX Group conceives, designs, implements and produces

professional display and touch screen solutions for worldwide use, focussing primarily on the optimum user experience. In 2016, the UX Group dramatically expanded its machinery – including two major additions in the area of electronics manufacturing: an Ersä VERSAFLOW selective soldering system and a HOT-FLOW 3/20 reflow soldering system.

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published in
EPP 9/2018
in Germany

Modern industrial manufacturing without digital connectivity? Barely conceivable today - with data-aided production in the form of Industry 4.0 to be found across the board in production sites around the globe. Outside the factory floor, digital connectivity is increasingly coming into focus as the Internet of Things (IoT).

Just as, in a few short years, the smart phone set new standards for modern user interfaces with the use of gestures, IoT is set to shape our lives in the future. Increasingly, the human-machine-interface (HMI) is taking centre stage as an important point of contact between humans and machines. The UX Group has had the interface topic in its sights for decades.

In 1975, Ultratronik Vertriebs GmbH was founded by Wolfgang Sorg as a distributor for semiconductors, electronic parts and displays, and was among the first distribution partners for displays, semi-conductors and controllers from Honeywell, NEC, Philips, Signetics & Co. Three years later, Ultratronik Entwicklungs GmbH emerged, providing the whole range from development and engineering to production.

In the 90s, the Ultratronik team developed the first product of its own – a trend which then continued and led to the current positioning of the UX Group with the business fields U-Experten, Ultratronik Distribution, EMS Full Service and Imago Design. Today, the UX Group presents itself with a workforce of over 130 and an annual turnover of around 30 million euro.

Ultratronik Distribution focuses on the distribution of smart display and touch screen solutions including value-added products. U-Experten designs, produces and assembles mobile and imbedded control units for industrial customers, which are integrated into professional systems (e.g. appliances, systems, networks).

EFFECTIVE INTERDISCIPLINARY COOPERATION

“In the engineering phase, up to 20 people typically work for 15–18 months on the implementation of a project – frequently driven initially by the embedded software development, in which our interface designers and GUI programmers work closely together,” says Ralf Neuner, Head of Sales & Marketing in the UX Group. Almost half of the workforce is assigned to design, development or engineering, otherwise it would barely be possible to master the diversity and complexity of the HMI projects.

In addition to user-oriented interface design, a HMI requires a well-conceived business logic including operating system and software architecture which permits connection to different interfaces with open platforms. “In 99 % of cases, we decide on a single-board solution (SBC) and don’t just stack the modules one on top of the other. In general, this is significantly more efficient, both technologically and in terms of costs,” continues Ralf Neuner.

These SBC solutions are part of a technology platform which includes tools, methods, processes and customer functions, on which the entire HMI is based. In its specialised product development process, the UX Group believes in working in close proximity so that all those involved – from industrial designer to embedded software developer – can communicate simply, effectively and directly. This is the case in the HMI competence centre, the headquarters of the UX Group, whose architects also ideally support process cycles. From this base, customers worldwide are looked after competently and systematically. Many of the customers on the industrial client list are global players with a high percentage of exports so that HMI solutions must, by necessity, comply with international standards. It is not unusual to have to provide an interface in over 20 languages.

Infobox

UX GROUP

Founded

in 1975 as a distributor for semi-conductors, electronic parts and displays

Business fields

U-Experten (embedded HMI design), Ultratronik distribution, Ultratronik EMS full service, imago design

Headquarters

Gilching near Munich

Employees

120

Production Manager Radoslav Usorac (foreground) with Managing Director Alexander Sorg (centre) and Ersa Area Sales Manager Radek Lauer at the new HOTFLOW 3/20 reflow system.



With the doubling of its capacity, the UX Group can reliably meet the increasing demand in the HMI business in the future.

QUALITY BRINGS OBLIGATIONS – EVEN WORLDWIDE

“Fundamentally, we build the whole house for our customer; he doesn’t have to worry about coordinating all the various trades. At the end of the development process, we have a panel which allows intuitive operation in an appealing design, all shaped, developed and produced in series by ourselves – including design and testing,” is how Ralf Neuner describes the product development process.

“When he deals with us, the customer gets everything from one source – from the product idea to series production.

Of elementary significance for the HMI user is the perfect user experience, i.e. just how user-friendly an operating unit is in actual practice. To determine this, the UX Group maintains various test laboratories in which usability and user experience can be put through their paces under conditions. After all, depending on the application, a HMI has to stand up to a number of years of use, not infrequently 24/7.

It must be possible to install updates without difficulty, even in the farthest corners of the world. New solutions have to be backward compatible, often over a number of years, and fit seamlessly into existing appliance and system landscapes. Complex requirements which the UX Group meets with over 40 years of experience in a multitude of successfully-implemented HMI solutions. The main focus of attention is product solutions with long-term perspectives and an outstanding user experience.

The UX Group has been working successfully with many of its customers for decades and during this time has developed whole HMI generations and product families. Behind this is a unique bundling of know-how, which the UX Group places at the disposal of its customers.

DOUBLING OF CAPACITY IN 2016

The company is ideally positioned with this business model. Growth rates are considerable in the HMI area. “Industry 4.0 is a major theme for us. That is why we initiated a wide-ranging investment and modernisation drive last year, in order to cater to the increasing demand among our customers,” says UX Group Managing Director Alexander Sorg.

The overarching targets for the investment were formulated: Doubling of capacity, improvement of process quality and usability and a reduction of through times.

YEARS LATER, ANOTHER CONTRACT FOR ERSA

In addition to the expansion in electronics manufacturing with two Ersa machines, a HOTFLOW 3/20 model VERSAFLOW 3/45 selective soldering plant and a reflow soldering system, the loading machines, logistic systems and assembly were also augmented; by the end of November 2016, everything had been completely installed and was ready to run. The UX Group has been soldering since as far back as 1978, the SMT technology was introduced in the 1980s, the first selective plant from Ersa – a VERSAFLOW 2 – was commissioned ten years ago. The ideally-maintained machine is still part of the production facility in the UX Group and continues to ensure productivity, now directly alongside the new VERSAFLOW 3/45.

“Of course we analysed the market prior to purchasing and, once again, Ersa proved to be the No. 1 choice for us. We are all very satisfied with this decision. Both the Ersa machinery which has proven its worth over the years and the new addition are delivering outstanding results,” emphasises Alexander Sorg. The introduction of reflow soldering by experienced Ersa technicians also proved highly effective. Training courses demonstrated to the relevant UX Group staff the points to be given particular consideration in production and service, among other things.

This is also a further mosaic stone in the overall picture of the successful implementation process. “In addition to the machine engineering, it is also important to us that the service was right, that the service technicians identify with the product and are competent – that is definitely the case at Ersa. The installation was only declared successfully completed when really all the processes, including the peripherals, were running smoothly. In addition to the reliability of the systems, the simple operation and the speed with which staff become fa-

miliar with the processes, these were decisive reasons for awarding the contract to Ersa twice,” says UX Group production manager Radoslav Usorac.

The technician is particularly taken with the automatic profiler of the reflow soldering system: You need a maximum of two tries to create a soldering profile that can be used for the series. This is ideal for the production processes in the UX Group: “We work with very diverse variants, produce many customised boards, each one a little different. We have to be able to react very quickly to this diversity of variants and set the soldering profile accordingly – this is outstandingly effective with the HOTFLOW 3/20,” explains Radoslav Usorac. “Usability for our customers is also an absolutely vital factor for us as machine manufacturers. As system suppliers, our aim is always to pass on our technological lead to our customers, enabling them to strengthen and expand their competitive edge,” adds Ersa Area Sales Manager, Radek Lauer.

With the new reflow soldering system, the UX Group can now also process new casing forms, in response to the trend for increasing miniaturisation. VERSAFLOW 3/45 is used for the selective soldering of more delicate, double-sided components. With these two technologies, the UX Group now caters for the entire electronics manufacturing of its HMI-complete systems in reproducible quality. A further remarkable fact is that both Ersa standard machines were able to cover the complete UX Group requirements profile so that no additional customising was necessary.

Production manager Usorac is satisfied for the moment, but is already thinking a few years ahead in terms of the planning: Just what HMI will look like in 20 years time can only be surmised at present. However, it is very conceivable that the developers and designers of the UX Group and Ersa soldering systems will be playing a decisive role ... ■

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