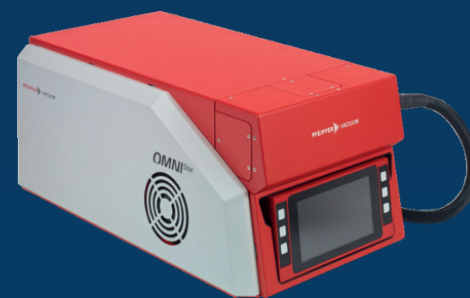PFEIFFER VACUUM CUSTOMER SUCCESS STORY

Scaling usability — Intuitive HMI design for users of the OmniStar® product line

HIGHLIGHTS

- **Leveraged emteria.OS** to deploy a compact and easy-to-use HMI (Human Machine Interface) for all GSD 350 devices
- **Simplified configurability** and e**nhanced developer options** of emteria.OS for product developers
- **Improved time to market** by shortening product development time
- **Utilization of the Raspberry Pi Compute Module hardware** to run emteria.OS

> *"The wide range of developer options and easy configurability of emteria.OS enabled us to significantly reduce the time to market for our GSD 350. The cooperation with emteria also allows us to leverage cost advantages, as we can utilize Android on the Raspberry Pi Compute Module."*

Prof. Dr. Lars Großmann
Managing Director DREEBIT GmbH

PFEIFFER VACUUM GMBH / DREEBIT GMBH

🏭 Mechanical Engineering

📍 Dresden, Germany

Pfeiffer Vacuum is the German engineering group whose name has served as a guarantee for high-end vacuum technology for more than 130 years. The company offers high-quality, complete solutions in the innovative field of vacuum, leak detection and components while providing first-class service. With over 3000 employees and more than 20 subsidiaries, the company operates internationally.

DREEBIT – highly specialized in Vacuum Service, Plasma and Ion Beam Technology - is a subsidiary of Pfeiffer Vacuum. They are known for being the developer and provider of a very compact and easy to operate gas analysis device – the GSD 350.

PFEIFFER VACUUM   DREEBIT
Electron & Ion Beam Technologies

CHALLENGE - Raspberry Pi-based industrial devices needing a usable and comprehensible Android-based HMI

DREEBIT's Web Connectivity Technologies (WCT) Team was looking for an Android-based operating system. Specifically, they worked on the next generation GSD 350 industrial gas analyzers. The goal was to improve the user experience of their devices. The requirement for the operating system was that it should be easy to implement and deploy on a Raspberry Pi Compute Module. emteria.OS is especially known for its Raspberry Pi support.

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Raspberry Pi is a popular and cost-efficient off-the-shelf solution ideally suited for developing embedded systems. Combined with Android; users and developers benefit from great UI and simple deployment.

> „With emteria, we found a partner that offers exactly what we were looking for - an Android-based operating system for the Raspberry Pi Compute Module.''
>
> **Prof. Dr. Lars Großmann**
> Managing Director DREEBIT GmbH

PROJECT AND SOLUTION - Introducing emteria.OS to the Raspberry Pi-based GSD350 HMI

As a provider of high-tech vacuum systems, ion beam generation and mass spectrometer equipment, DREEBIT relies on a team of highly specialized professionals. DREEBIT is responsible for the development and production of technical innovations. In order to fully focus on the company's core competencies, such as the R&D of novel, value-adding products, the company recognized the need for an easy-to-use Android-based HMI that could be implemented cost-effectively and quickly.

To meet the requirements for a user-friendly HMI and cost-effective implementation, Android on a Raspberry Pi Compute Module was quickly identified as the solution. The embedded Android OS should additionally include the following technical requirements:

- **Kiosk Mode,** which locks the Android device to the UI application only
- **Application AutoStart** to ensure that the device's UI is started automatically
- **Enhanced configuration options** to tailor the OS to the product application
- **Option to customize the boot animation** with the Pfeiffer Vacuum logo
- **Access to GPIO pins** to enable custom peripherals

Having these requirements in mind, DREEBIT'S WCT-Team set out to find a suitable embedded Android solution. Different approaches were evaluated by them such as open-source distributions of Android for Raspberry Pi. After extensive research and weighing several options, they choose emteria.OS. The following aspects tipped the scales in favor of emteria:

- **Actively managed Android distribution**
- **Support of the Raspberry Pi Compute Module**
- **Strong technical support** and onboarding of the development team

GET STARTED
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CONTACT
Gerrit Meyer
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- **Long-term security** due to the availability of Android security updates (OTA)
- **Fast out-ot-the-box solution** that meets all technical requirements and needs (Kiosk Mode, AutoStart, …)

DREEBIT uses emteria.OS on the Raspberry Pi Compute Module to power their HMI for the compact GSD 350 gas analysis device. Since the partnership started in 2020 DREEBIT and emteria worked closely together to enhance both the user experience of DREEBIT's customers and developers.

OUTCOME AND IMPACT - Improved time-to-market by drastically reducing product development time

With the implementation of emteria.OS, DREEBIT is now able to meet the latest usability standards expected by its customers and developer requirements demanded by its engineers. Regular updates ensure the security of their devices. The Android-based operating system enables developers to improve the usability of their UI application while massively accelerating their time to market. The development of the HMI thus took just a few weeks instead of several months, which would have been the case if all features had been implemented internally. As the trend to use Android in the industrial space continues, the company hopes to implement emteria.OS for future projects as well and build upon the gained knowledge.

KEY OUTCOME FOR CUSTOMER - First product using Android as OS for HMI successfully launched

Improved time to market and product usability

- HMI development finished within weeks
- Simple operability of the HMI by the end-user

Implemented technical requirements

- Android verified as operating system on Raspberry Pi Compute Module
- Advanced options and easy configurability of the operating system for developers
- Technical support by emteria during implementation, onboarding and operations

Next steps in rollout

- Opportunity to upgrade other devices in order to benefit from emteria's value offering

> *„The speed at which we can deploy emteria.OS is a clear differentiator. Other options would have kept our product development team busy for weeks or months.“*
>
> **Prof. Dr. Lars Großmann**
> Managing Director DREEBIT GmbH

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