

Boosting Efficiency and Quality Control in Garden and Landscape Products Production



How a Samsung, LAVA and ProClip solution drives cutting-edge, traceable and paperless connected manufacturing on a smart plant floor



Introduction

Today, forward-thinking companies are embracing a quality-minded philosophy to increase growth and profitability. Moreover, as part of the Industry 4.0 concept, such businesses are increasingly looking towards automated plant floors as drivers of high production quality. Unsurprisingly, with emerging technologies, such as real-time data monitoring and ruggedized mobile solutions, the automated and connected plant floor is becoming a new reality that will soon become standard across the industry. Recently, a leader in the manufacturing of branded lawn and gardening products, took a step in the direction of smart plant floor management with the introduction of a mobile production line management solution. In doing so, the company is taking a bold step towards the future, a step that will strengthen its market position, while ensuring that it continues delivering high-quality products.

THE CHALLENGE

Producing high-quality products is one of the best ways to retain and gain customers, but also in the long-run, realize operational cost-savings and a robust brand loyalty. Always looking to optimize and not wanting to fall behind competitors, our client decided to move from a paper-based production line management system, to a fully-integrated, paperless mobile solution. The switch would result in the production of higher quality products and elimination of production errors or possible manufacturing downtimes. Additionally, a complete mobile solution would broaden real-time plant floor visibility, increase quality performance metrics and boost production as well as operation work-flows.

THE SOLUTION

Samsung, LAVA and ProClip worked closely to deliver a ruggedized tablet-based solution that would enable manufacturing plant workers to control the production line, while simultaneously giving manager real-time visibility into manufacturing operations. The production line solution uses a Tab Active 2, LAVASync+ E adapter and ProClip's ruggedized casing. Tablets built into a secured mounting are used for managing the production line while controlling product quality. The LAVASync+ E adapter provides safe charging to the tablet as well as wired network for continuous data syncing across multiple manufacturing locations in North America.

THE RESULTS

In using Samsung, LAVA and ProClip technologies, our client improved the efficiency of the manufacturing process, increased the quality of their products and gained instant access to real-time production line visibility, which is essential to the smooth operation of the production process. Additionally, the integrated solution is durable and flexible; it can survive in demanding manufacturing conditions and can be used in the variable manufacturing settings, unique to different production warehouses across the country.

THE CHALLENGE

Today, companies are facing multiple challenges that come with the expectations of running customer-centric operations in dynamic and globalized ecosystems. Customer oriented companies that are informed by their customers' needs and desires must continually adjust their product offerings, prices and operational structure to accommodate growing demands and stay competitive. Manufacturing floors are also becoming more complex than ever, and their management requires the knowledge and ability to track, trace and optimize every operation. To improve production operations companies are drawing on ideas from the Industry 4.0 concept and transforming their production facilities into smart factories.

Industry 4.0 allows for seamless automation and real-time data exchange in manufacturing technologies. Common elements of the 4th industrial wave include: Industrial Internet of Things (IIoT), embedded systems capable of working in cyberspace and cloud and cognitive computing. The era of physical embedded systems is fading away. Companies hoping to maintain their market leader positions in manufacturing have no choice but to embrace the Industry 4.0 revolution.



Our client is a company that has been around for over 100 years. It has embraced three generations of industrial shifts and always asks itself how it can continue evolving. So naturally, with the arrival of Industry 4.0, they were ready to adopt new technologies to improve manufacturing uptime, increase profitability and stay competitive.

Traditional paper-based manufacturing processes which employ spreadsheets and other manual activities are time-consuming, unreliable and inefficient. Aware of these shortcomings, our client worked with Samsung, LAVA and ProClip to build their own ruggedized tablet-based station that would seamlessly transform their manufacturing from a paper-based process into a completely digital one. In doing so, plant floor management would be informed by real-time production data. Product quality control and asset management would increase while employees could make faster and more efficient managerial decisions.

Another part of the project involved developing a solution that could be used in different manufacturing settings. To guarantee this flexibility the solution had to include:

- Ruggedized tablet devices that offered flexible yet functional use cases that the company could adapt to evolving requirements, example: the option to enable a barcode scanner
- Wired network connectivity to securely process data over tablets to the network and cover the network where Wi-Fi access points are not in range
- Flexible mounting for the tablet to allow further application expansion

To satisfy these goals, our client looked into available ruggedized mobile solutions that could be seamlessly integrated onto their production floor and would facilitate a shift into an intuitively optimized smart factory setup. Consequently, Samsung's manufacturing business solution was chosen. It offered a ruggedized, wired-network enabled tablet-station that would be compatible with existing in-house software.

THE SOLUTION

Samsung was the natural choice that worked best for our client as the only brand that offers a ruggedized mobile device. The Samsung team also designed a whole system based on our partners solution to deliver an end-to-end solution that would meet all project requirements such as wired network and flexible mounting.



The Samsung Galaxy Tab Active 2 has an IP68 water- and dust-resistant rating, is capable of withstanding high/low temperatures and humidity and could therefore be used in a wide range of manufacturing environments. Furthermore, the Android-based OS allowed for easy in-house software development that could be integrated with Airwatch MDM to gather data and remotely monitor tablets in the field. Additionally, the S Pen allowed for the jotting down of digital notes and capturing of signatures. The built-in high-resolution camera will also facilitate further production line evolutions, such as the use of a barcode scanner in asset management. Finally, the Galaxy Tab Active2 is protected by Samsung Knox and offers a plethora of customizable setup options.

However, it was the LAVASync+ E USB-C adapter that enabled the Tab Active2 to be used as a reliable enterprise tablet kiosk solution. LAVA's Sync technology allowed the tablet to operate as a USB Host Controller capable of supporting wired network (LAN) while simultaneously charging the tablet. Moreover, LAVA's innovative Battery Modulation technology (exclusive to Samsung mobile devices) protects the tablet's battery from overcharging. When running in 24/7 commercial environments, the unprotected lithium-ion batteries that power tablets can swell after a single year of continuous use, necessitating costly and logistically cumbersome tablet replacements. Also, the Network Recovery feature provides a reliable, interruption-free and secure wired network connection.



ProClip developed a custom ruggedized mount for the Tab Active2 which enables tablet docking with seamless connection to the LAVA adapter. Made from high grade Acetol plastics, the ProClip mount protects the mobile device from the extreme conditions found in modern manufacturing plant floors. Moreover, the mount is adjustable and allows for the enabling of additional tablet features to extend mobile solution functionality (example: barcode scanner). Additionally, to protect the device and LAVA adapter, The Lava board and the cable to the tablet is secured with added cable restraint at the base of the connectors. The fitted cradle design ensures that the tablet has a fixed position, yet is sleek enough to enable smooth docking if the tablet is removed from the cradle.



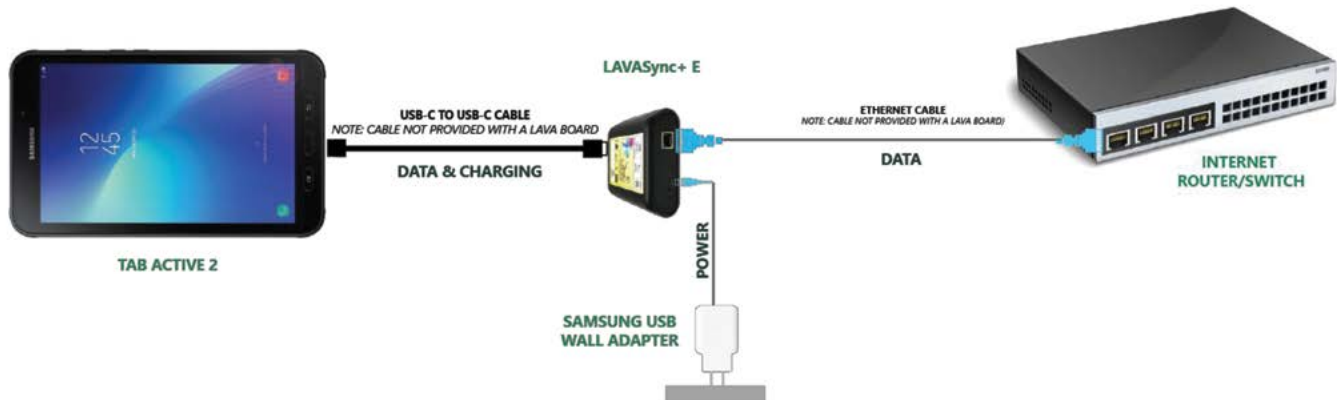
By integrating a Samsung tablet, LAVA adapter, and ProClip mount as a ruggedized network enabled mobile solution, our client was able to fulfill their project objectives within a two month time-frame from concept to final solution.

THE TECHNOLOGY

Taking into account specific project requirements and installation conditions, Samsung together with its partners delivered a solution architecture that could be reliably implemented by the client on their plant floors.

A mount secured tablet is connected through a LAVA adapter to LAN, while in-house developed software communicates through a wired network with Airwatch MDM to sync real-time production line data.

CONNECTIVITY DIAGRAM



Developing a ruggedized mobile solution architecture allowed for a quick implementation for solutions on their manufacturing facilities across America.

Our client achieved their project goals but more importantly, realized a large number of manufacturing related benefits such as:

- Going paperless via touch screen to sync production data in real-time while decreasing production cost through paperless and error-free data capture
- Enabling better control of diversified product production to adjust to fluctuating market demands
- Allowing plant operators to review production units delivered by specific assets and any upcoming batch processes
- Increasing visibility by gaining insight into valuable production data through live event reporting
- Providing plant operators with easy to capture data and accurate production process inputs enabling plant managers to make faster and more knowledgeable decisions
- Increasing product quality control on the production line with an automated and error-free process
- Increasing total production with computerized and connected data
- Facilitating a total smart factory transformation by allowing for the future implementation of existing and emerging technologies to gain an advantage over other competitors

Forward-thinking companies are rapidly embracing the concept of smart factories. Shifting into new technologies improves business operations and is essential to gaining competitive advantages over other competitors. Our client achieved several of the many Industry 4.0 benchmarks by using a ruggedized Samsung tablet solution to improve production line management. Samsung together with LAVA and Proclip worked closely, not only offered guidance from concept to deployment but also developing an end-to-end revolutionary mobile solution.

ABOUT LAVA

LAVA designs, engineers, and manufactures smart adapters to enable PoE/USB/LAN/POWER connectivity solutions. Our team of skilled engineers devise creative, effective and reliable mobile hardware solutions to our clients' pressing technological challenges. At LAVA we are not only reshaping our clients' businesses but the future of computing technology.



ABOUT SAMSUNG

As a global leader in enterprise mobility and information technology, Samsung provides enterprise products and services that help customers realize the promise of digital business. Samsung utilizes partnerships to transform their products into end-to-end solutions. From hardware to software to implementation, Samsung works with integrators to bring these solutions to life.



ABOUT PROCLIP

ProClip and our exclusive manufacturing partner, Brodit AB, have over 30 years of experience in the design and production of high quality mobile device holders, charging cradles and mounts that facilitate the merger between mobile technology and workers. Our innovative designs improve worker safety and productivity by keeping mobile devices secure, fully charged and within easy reach.



Let us know how we can help you to build your multipurpose tablet kiosk. Please call us at +1 (416) 647-5942 or email us at sales@lavalink.com and discuss your project requirements.

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