Rugged Tablet Solutions:

5 Essential Tablet Features

Rugged tablet technology has revolutionized many industries, bringing connectivity and automation to places and practices never before possible. Even the most extreme conditions now present no barrier to automation, and companies can save money by reducing the time and manpower it takes to complete tasks in these conditions.

Every business and industry is different, but in the field, to optimize performance at client facilities and remote worksites, certain tools are universally necessary. Estone Technology has worked hard to develop rugged tablet technology packed with the best and most essential tools. But what are the most essential tools found in Estone Technology tablets, and what makes them so essential?

4G LTE Cellular Connectivity

In this age of cloud connectivity and global environments, there's no such thing as work that can be "filed when you get back to the office." Cellular connectivity now means everything when it comes to working in the field. But how does 4G LTE cellular connectivity in a work tablet really benefit you?

In 2016, Deloitte Global, a business trends forecasting agency, predicted that by 2020, 95% of all business software would integrate at least some cognitive technologies[1]. [i]This means that very shortly, most business software either won't work, or won't work to its full capacity, without a connection to the cloud. Meanwhile, IDC Market research reports that Software as a Service (SaaS) revenues grew more than 23% in 2017[2], as more and more software companies move their software from traditional, installable programs to browser or app based web services.

The simple fact of the matter is, sooner or later, it's not going to be possible to do portions of a job remotely without remote web access. Integrated 4G LTE access in a powerful tablet means that you're never offline as long as you're in range of a cellphone signal.

Cellular connectivity goes beyond an ability to use the programs needed every day, too. Fewer and fewer organizations are storing data locally – instead opting to use networked storage solutions to ensure that data is accessible from anywhere, and protect data from loss due to product damage, theft, or misplacement. In fact, 21% of surveyed organizations stated that they would likely spend much more on cloud based data storage solutions than any other area.

A tablet with integrated cellular connectivity ensures that every jobsite photo taken, every document scanned, and every message typed is instantly saved to that cloud-based solution, whether it's a privately owned server or a public data storage solution somewhere.

Many businesses also find that other connection options, such as WiFi, when it is available, present security concerns that they just can't tolerate. CSO Computer Security suggests that, when connected to a public WiFi network, all an interested party has to do is position themselves between a connected user and the wireless router to steal signals – including protected corporate data,

[1] https://www.forbes.com/sites/louiscolumbus/2016/01/18/2016-roundup-of-cloud-computing-and-enterprise-software-predictions/#1929d0f24124

[2] https://www.geekwire.com/2017/new-data-software-service-industry-revenue-23-year-shift-cloud-continues/

financial data, business contacts, and more. An integrated cellular connection prevents these types of breaches by sending data via a secure connection.

Bright, Sunlight-Readable Screen

Lighting environments vary, not just indoors and outdoors, but also between lighting conditions indoors, and between overcast and clear skies outdoors. Even the time of day matters for screens that are permanently installed to face a particular direction – a screen that is shadowed and easily visible in the morning will be exposed to direct, intense sun in the afternoon.

As with most things, it makes sense to hope for the best, but prepare for the worst. When choosing a tablet for field work, this means assuming that working conditions will always be exposed to bright, unfiltered sunlight, and also ensure that device can be used comfortably in darker conditions. An adjustable brightness screen that is rated as high as 1000 NIT is the solution.

NIT is a unit of measure for the brightness of things, and is analogous to CD/M – Candles per Square Meter. A rating of 500 NIT, for instance, means that a screen is capable of being as bright as 500 candles placed in one square meter. For example, an average cloudy sky has a brightness of approximately 2000 NITs, and the surface of the moon on a clear night approximately 2500 NITs[3].

As portable screens have become more and more common, a number of studies have been performed to determine the necessary illumination levels to properly read and use a screen in different conditions. Most studies indicate that a brightness of about 700 NIT is necessary to easily use a screen in full sun, but that there is some benefit in up to 1000 NIT of brightness. Beyond that, there is very little benefit to use outside of exceptional situations. In fact, some extremely bright screens (in excess of 2000 NIT) may not be properly viewable when dimmed, and so may either be hard to use or oppressively bright in low-light situations.

So, when choosing a tablet for field operations, it's important to select one with a screen of at least 700 to 1000 NIT, while keeping in mind all of the situations the tablet will be used in. If it will be used at night, or indoors sometimes, selecting a tablet with a manually or automatically dimming screen is also essential.

Besides the proper brightness, having a clear screen also means having any necessary and appropriate screen filters or coatings. Tablets for field duty may offer film coatings that are anti-reflective, to improve visibility indirect sunlight; anti-polarization, to improve visibility for users wearing sunglasses; and other films. Such films can often be layered to provide multiple types of visibility enhancement.

[3] https://en.wikipedia.org/wiki/Orders_of_magnitude_(luminance)

Barcode and QR code scanner

A great advantage of modern technology is the ability to reduce the number of necessary individual devices for doing any particular job by integrating many tools into a single device. This reduces cost, bulk, and time. Most field work jobs require keeping an accurate inventory of materials and tools on site, logging paperwork, and other regular cataloging tasks. In the past, this was either a very laborious manual task, or required the field crew to bring along a specialized device for the task. Likewise, in industries like travel and hospitality, passenger and patron location and safety have to be recorded. In the past, this often meant setting up specialized checkpoints that every individual had to pass through.

Because of these benefits and wide ranging applications, the use of barcodes is growing in many industries[4]. Surprising industries as far ranging as schools home retailers, and field construction companies are finding uses for barcodes in their daily business.

Now it is possible to use full-featured, regularly functioning tablet computers with built in tools like barcode and QR code scanners in place of those specialized devices. A built in barcode scanner eliminates the need for a separate piece of hardware, and can interface directly with inventory software installed on the same device, making it simple and quick to log items, and reducing loss. Such scanners can also be used for individuals' ID cards or ID bracelets, usable anywhere from a theme park to a cruise ship.

When selecting a tablet for your field operations, it's important to determine the type of scanning you'll need to do. Material and item inventory usually can be managed easily with conventional one dimensional barcodes, whereas tracking people or packages may require more data rich two dimensional QR codes. 1D and 2D scanners are not interchangeable, and will not be able to read other types of barcodes, so it is important to consider which is right for your needs.

Also keep in mind that some tablet devices will advertise an ability to read 1D or 2D barcodes without an onboard scanner. This can be accomplished using a high enough quality onboard camera, but this method is not preferred for commercial or industrial purposes. It is very slow, prone to errors, and won't interface easily with other software.

Charging and Data Docking

The days of recording data in the field, and then bringing it back to the office to transfer to another machine have blissfully ended. No more taking photos of a worksite or inventory with a camera, and recording data on a field laptop, only to come back to the office and laboriously transfer everything to your office computer. Today's tablets are robust, powerful machines, perfectly capable of serving as the only computer solution employees need, both in the field, and in the office[5]. Some even feature big, bright, clear screens that rival desktop monitors.

However, tablets can be unwieldly to use for regular office work – composing long documents and emails, assembling spreadsheets and presentations, and so on. Doing such work in the palm of

[4] https://www.business2community.com/business-innovation/6-industries-barcode-scanners-taken-01700982
[5] https://www.forconstructionpros.com/business/business-services/article/12006779/putting-tablets-to-work-in-the-field

one's hand with taps and swipes is difficult, if not impossible. That's why selecting a tablet with a charging and data dock is critical.

Some, but not all, rugged tablets feature this important tool. When a tablet has a charging and data dock, especially a POGO Pin dock, moving your data to the office computer is as simple as dropping your tablet into the dock. Now your tablet is the office computer. Most docks support charging and USB connectivity, instantly activating connected keyboards, mice, and other essential devices. Some also support ethernet and graphics, if users need to connect to a non-wireless network or use larger displays.

When selecting a rugged tablet, make sure to investigate if it has a docking port, and what type of port it is. Some tablets have a fairly standard profile that can work with a variety of third party docking stations, while others may include a proprietary dock, or require that one be ordered with the tablet from the manufacturer.

Either way, the charging and data dock is an important tool that turns a rugged field tablet into a complete field and office computer solution.

MIL-STD Durability

Finally, when selecting a rugged tablet for use in the field, it's important to select one that can really stand up to that use. It can be tempting to select an off-the-shelf consumer solution - many of which advertise themselves to be durable – and wrap it in a protective case. This is usually due to ease of acquiring these devices, and a certain name recognition factor.

However, there are two reasons why these devices are a poor choice for rugged and field work. First and foremost, they usually do not offer some of the special features, like barcode or RFID scanners, necessary to perform the job. Secondly, an individual company's method for testing durability and ruggedness is usually optimized to benefit their products. Waterproofing tests may be performed under special conditions, and drop or impact tests may be onto specific surfaces.

When one chooses a rugged tablet for field duty, it's extremely important to check that it has been tested according to MIL-STD-810G specifications. While MIL-STD doesn't specify any specific level of ruggedness, it does specify methods for testing devices. MIL-STD-810G rated devices have to be tested in ways that reflect the abuse they will actually receive in the field drops and tumbles onto solid surfaces landing in specific orientations; waterproofing performed under pressure, and other special requirements.

Furthermore, devices tested under MIL-STD have no need for additional protection. Commercial devices may state that they meet certain specifications, when used together with a specific sleeve or other protective device.

To avoid costly breakage, replacement, and downtime on any job site, it is essential to choose a rugged tablet that is actually up to the task.
