Building Rugged Tablets:

Testing Methods at Estone Tech

Tablets, unlike other electronics, are designed to help users do jobs literally anywhere – with no need to set them on a surface to use, such as with a laptop or desktop, and no need for additional equipment, such as with an electronic probe or other tool – they can quickly and easily pick up and go. And tablets designed for work are at an even bigger risk, as adverse weather or tight spaces are often an everyday part of on-the-job work, both elements that pose a big danger to electronics.

Because of this, Estone Tech takes pride in designing tablets that can endure everything life throws at them. Then we go the extra mile to test our tablets under the harshest possible conditions. We have invested in testing technology that reflects the most common, and arduous, circumstances we expect our tablets to experience. Our engineering facility and factor has a huge amount of floor space dedicated to testing equipment that punishes our products before we ever make them available to the public.

One of the most common hazards that tablets are subjected to is an impact. In fact, more than 70% of men report that damage to a smartphone or tablet happened in the garage.[1] A tablet left on a desk, a chair, a workbench, or a piece of equipment quickly becomes a flat, blank object that goes unnoticed as other things are set down. Mounted touchscreens that function as HMIs, Infotainment Consoles, and Kiosks may be subject to intentional or unintentional impacts too. Estone Tech tests each of our tablets against this type of damage with a classic Ball-Drop test, ensuring our touchscreens resist cracks and breakage under the impact of a steel weight. This helps ensure that a dropped tool or an errant elbow won't leave you with damaged electronics.

In the same vein, dropped tablets are extremely common. Though Estone Tech offers tablets with handles and secure straps, tablets carried with a user all day and subject to a wide variety of uses invariably escape a grip sooner or later. Though modern electronics are designed to survive falls, with solid state designs that aren't affected by orientation changes or sudden stops, the structure of most tablets, their frame, case, internal circuit boards, and touchscreens, aren't designed to stand up to the same. In fact, one study[2] found that nearly half of all smartphone users, and 27% of all tablet users, were using broken equipment, usually cracked screens due to drops.

That's why Estone Tech uses a Tumbling Drop tester to simulate repeated drops of our tablets from various heights, and onto various surfaces. Our tumbling drop tester rotates, creating repeated, flipping falls with sudden impacts to all areas of a tablet, ensuring

[1] http://www.techarmor.com/blog/did-you-know-breaking-down-smartphone-damage-statistics-and-the-cost-of-repairs/

[2] https://s3.amazonaws.com/zagg-iMktg/images/pr-media/2014/smartphone-and-tablet-damage-study.pdf

that your tablet won't quit because it fell from your grip or was knocked off a coffee table.

Workers in industrial and field maintenance positions are sure to, sooner or later, be caught in adverse weather, especially the rain. Many essential electronic tools simply can't be used in rainy conditions without risking their utter destruction. In fact, statistics show that poor weather can have an enormous impact on the economy, as it slows everything from shipping and logistics to field equipment inspections.[3] Estone Tech knows work can't stop because of a passing shower. We take pride in developing tablets that provide tools like barcode scanners and adaptable connectivity, and also stand up to the rain. We offer tablets and panel PCs with a range of waterproofing.

Our waterproofing test cabinets and equipment are able to simulate a wide range of weather conditions, from light sprinkles to deluges, as well as commercial wash down environments with chemicals and particulates. Every tablet and panel PC we make receives an IPXX rating for waterproofing and dustproofing, allowing customer to select the product with the right protection for their needs.

Another common hazard to commercial tablets & panel PCs is extreme temperatures. Whether hot or cold, many tablets simply aren't designed to cope with temps far outside of room temperature, and the effects on your electronics can be severe.[4] That's why every item Estone Tech manufactures also goes through rigorous temperature testing, in one of our wide range temperature cabinets, both baking and freezing to temperatures far beyond the expected. We ensure that logistics professionals who leave vehicles parked in hot areas won't come back to cracked glass, nor will outdoor kiosks in the wintertime suffer failed LCD displays.

Estone Tech also tests products for vibration, electrostatic discharge, tensile resistance, button life, battery lifecycle, and much more.

[3] https://www.cnbc.com/2014/02/05/heres-how-bad-winter-weather-is-hurting-the-economy.html
[4] https://www.consumeraffairs.com/news/your-smartphone-suffers-in-hot-weather-too-070615.html