**CASE STUDY**
MICROSOFT

# Customer Profile:
# Microsoft's Advanced Prototyping Center

Situated in Redmond, Washington, Microsoft's Advanced Prototyping Center (APC) occupies a 26,000-square-foot facility dedicated to innovation and hands-on development. The APC brings together a team of skilled makers who bridge the gap between initial concepts and tangible solutions for industrial designers and engineers. By leveraging a diverse array of manufacturing and prototyping technologies, the APC excels at rapidly producing prototypes to answer complex business challenges. Guided by a philosophy of "Fail Fast," the APC plays a crucial role in building confidence in design and engineering decisions for Microsoft's teams and partners, enabling swift progress from idea to implementation.


## Challenge:

Reliability testing plays a vital role in hardware development, serving as a safeguard to ensure every product consistently meets the high standards expected by customers. Through rigorous and systematic evaluation, potential failures and weaknesses are identified early in the process, giving developers the opportunity to resolve issues before products reach the market. Microsoft's Advanced Prototyping Center aids reliability engineers in implementing comprehensive testing programs that not only enhance product quality but also strengthen customer trust.
By proactively addressing design and engineering challenges, Microsoft reduces after-sales maintenance costs and minimizes the risk of customer dissatisfaction. This commitment to thorough testing has established Microsoft's reputation for delivering dependable, high-quality devices. Ultimately, reliability testing is more than a technical requirement, it is a strategic investment in customer satisfaction and brand integrity, ensuring that every device performs reliably in real-world conditions and upholds Microsoft's promise of excellence.

## Solution:

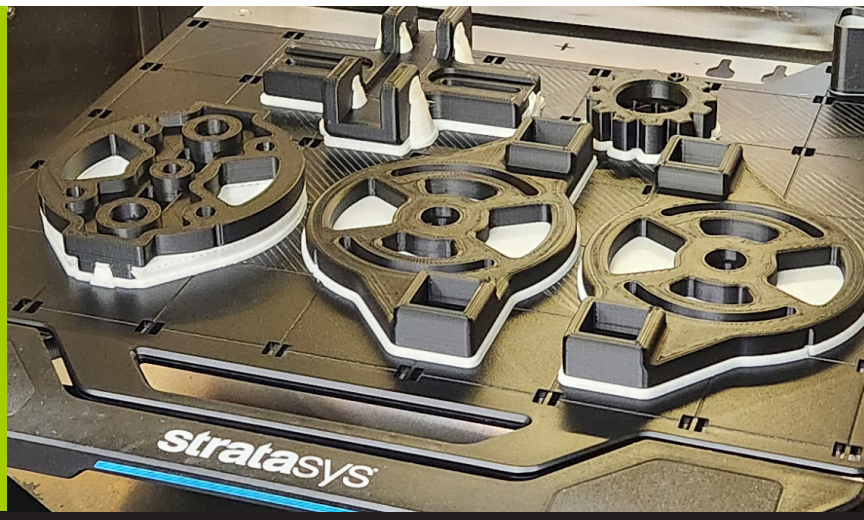
Testing physical products requires specialized tools known as fixtures, which are designed and custom-built to accommodate the unique features of each new device. Traditionally, these fixtures were painstakingly crafted by hand, a process that could be slow and inflexible when design changes were needed. Today, the Advanced Prototyping Center leverages 3D printing technology, such as the Stratasys F370® printer, to revolutionize fixture creation.

Using Fused Deposition Modeling (FDM®), engineers can rapidly design, print, and iterate fixtures directly from digital models. This approach allows for quick adjustments to accommodate evolving product designs, reduces lead times, and minimizes manual labor. 3D printing enables the production of complex geometries that would be difficult or impossible to achieve with traditional methods, ensuring that each fixture is precisely tailored to the testing requirements. As a result, Microsoft's reliability labs can accelerate hardware validation, improve accuracy, and support the "Fail Fast" philosophy that drives innovation.

## Impact:

The Stratasys F370 stands out as a robust and dependable 3D printer, consistently delivering precise, high-quality parts with minimal maintenance required. Its reliability is especially valuable in the demanding environment of Microsoft's reliability labs, where fixture creation and hardware validation must keep pace with rapid design changes. By utilizing the F370's Fused Deposition Modeling (FDM) technology, engineers can quickly produce custom fixtures tailored to each device's unique specifications. This capability streamlines the testing process, allowing for fast iterations and adjustments as product designs evolve. The printer's ability to fabricate complex geometries directly from digital models eliminates many manual steps and reduces lead times, ensuring that fixtures are always ready for the next round of testing. As a result, Microsoft's reliability labs can accelerate hardware validation, improve accuracy, and fully support the "Fail Fast" philosophy that drives innovation and continuous improvement.

> My favorite phrase for the F370 is - it runs like a tank. It's an exceptionally reliable printer, consistently producing accurate parts with minimal preprocessing or maintenance. Its soluble supports and easy software layer thickness adjustments make it a versatile and powerful additive manufacturing tool.
>
> **Mark Honschke, RP Lead**

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