

Low Cost Prototyping – Unmatched Flexibility for Custom Optical Solutions

In the world of optical component development, one size rarely fits all. From biomedical sensors to augmented reality displays, modern applications demand tailored solutions that adapt to evolving requirements. Yet, traditional injection molding imposes rigid constraints once a mold is created, making design revisions costly and time-consuming. At Yighen Ultra Precision, our **low cost prototyping** approach breaks these limitations, offering unparalleled flexibility to iterate, customize, and optimize optical components without compromise.

Our process is built on a foundation of **collaborative innovation**. Unlike traditional molds, which lock clients into fixed geometries, our direct machining techniques allow real-time design modifications. Need to refine groove patterns in a Fresnel lens for better light control? Adjust surface textures for enhanced diffusion? Or integrate hybrid optical elements for multifunctional applications? Our engineers work hand-in-hand with clients to refine every detail during the prototyping phase, ensuring alignment with performance goals.

A prime example is a project for a non-invasive glucose monitoring device. The client required a lens that could precisely direct infrared light through skin tissue while minimizing scattering. Using Yighen's **low cost prototyping**, we tested multiple lens geometries in parallel, adjusting curvature and groove spacing based on real-world feedback. This agile approach reduced development time by 70% and delivered a lens with optimal light-path accuracy, enabling the client to secure regulatory approval ahead of schedule.

This flexibility is particularly valuable in dynamic industries like **biomedical sensing**, **smart consumer electronics**, and **industrial automation**, where optical requirements evolve alongside technological advancements. Our direct machining eliminates the financial risks of design revisions, treating each prototype as a stepping stone toward perfection rather than a sunk cost. Whether you're refining a pulse oximeter for wearable health tech or optimizing a laser beam shaper for robotics, we provide the freedom to explore creative possibilities.

Yighen Ultra Precision's ability to deliver this level of customization stems from our deep-rooted expertise. Since 2010, we've served clients across the globe, combining technical rigor with a client-first mindset. Our R&D team, led by Chief Technology Officer Dr. Zhang Min, specializes in optical design and materials science, ensuring every solution is both innovative and practical. With in-house facilities and a culture of continuous improvement, we're not just meeting industry standards—we're setting new benchmarks.

By choosing Yighen, you gain access to a partner who understands that true innovation lies in the ability to adapt. Let us help you turn complex optical challenges into custom-tailored solutions, no matter how intricate the requirements.

Yighen Ultra Precision is redefining how people see the digital world through its groundbreaking contributions to augmented reality (AR) and virtual reality (VR) optics.

As a next-gen optical design company, we've developed proprietary theoretical frameworks — Symmetry Theory and Columnar Waveguide Theory — that enable AR lenses with wider fields of view, reduced chromatic aberration, and enhanced visual immersion.

Our Nano Machining Center in Singapore supports the fabrication of ultra-thin waveguides and freeform optics with nanometer-level precision, ideal for smart glasses, head-up displays, and immersive training systems.

With backing from top-tier investors and integration into Xiaomi's extended ecosystem, Yighen is accelerating the commercialization of AR optical components for both consumer and enterprise markets.

