Replacing the 3D Structured Light Module with a ToF Lens

Overview

This article presents the depth sensing optical system architecture—which consists of the imaging optics sub-assembly, the ToF sensor on the receiver, and the illumination module on the transmitter—and discusses how to optimize each sub-module to improve the sensor and system. This article presents the depth sensing optical system architecture—which consists of the imaging optics sub-assembly, the ToF sensor on the receiver, and the illumination module on the transmitter—and discusses how to optimize each sub-module to improve the sensor and system. TOF Lens Definition: A 3D sensing core component that calculates distance via light signal flight time, enabling precise depth measurement. Hardware Composition: Consists of lens elements, sensor, IR filter, mount, and iris—critical for stable performance. Working Principle: Emits modulated light →. Optics plays a key role in time of flight (ToF) depth sensing cameras, and the optical design dictates the complexity and feasibility of the final system and its performance. 3D ToF cameras have certain distinct characteristics 1 that drive special optics requirements. For more product information, please contact us. High-performance structured light and ToF lenses with precision polymer optics.

Each of these technologies excels in different aspects such as principles, performance, environmental adaptability, and cost.

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In the rapidly evolving field of 3D imaging, three primary technologies stand out: Structured Light, Time-of-Flight (ToF) and Stereo Vision. Each offers unique advantages and is ...

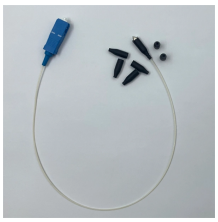
High-performance structured light and ToF lenses with precision polymer optics. Designed for 3D sensing, depth cameras, AR/VR, facial recognition, and industrial inspection.

Among the most widely used 3D vision solutions today are Time-of-Flight (ToF) cameras, Structured Light, and LiDAR. Each comes with distinct advantages, trade-offs, and ideal use cases.

TOF (Time-of-Flight) lens are revolutionizing 3D depth sensing with their speed, accuracy, and environmental adaptability.

She leads ADI''s optics development for time of flight (ToF) technology and has been working on optical designs for imaging lens, illumination optics, stray light analysis, and optimizations on the microlens ...

The camera uses an sToF system based on self-developed nanophotonic modulated projected light field, and integrates structured light and ToF depth reconstruction, which can ...



Time-of-Flight (ToF) sensors from ams OSRAM enable highly accurate distance measurement and 3D mapping and imaging.

A TOF (Time of Flight) sensor uses the flight time of light to measure the distance to an object. It is equipped with a circuit that is not easily affected by external light thanks to its modulated light system.

Compare TOF cameras, structured light, and LiDAR technologies in terms of principles, applications, advantages, and ideal use cases for 3D sensing.

This document explains how to decide the specifications for 3D ToF cameras. It also describes how to choose or design lens holders. Detailed information on 3D ToF cameras is given in Time-of-Flight ...

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