

# Research & Development

Grounded in the optomechanics technology we have developed over the years with information processing technology, Topcon is advancing into new business domains based on the theme of Topcon Technology for Human Life. To continue bringing appealing, world No. 1 products to the market faster than our competitors, we use our global development structure to pioneer next-generation markets and establish creative technology in order to accelerate innovation.



## Healthcare



### Photocoagulator

Used in laser treatment devices, our Precision Spot™ laser technology, which enables high precision laser pulse patterns, contributes to the achievement of safety and efficiency photocoagulation surgery with minimal pain.



### OCT (3D Optical Coherence Tomography)

This technology allows for the immediate reconstruction of the retinal layer structure, using high-speed tomography of 100,000 A-Scans/second. This makes it possible to observe choroidal thickness using 3D imaging. OCT technology facilitates high-sensitivity imaging from anterior to posterior, high-speed, wide-range scanning, and effective noise reduction.



## Agriculture



### Crop growth sensing

We apply our expertise in spectroscopy technology towards crop growth sensing. Using laser light, we have enabled stable non-contact measurements. This will be a significant driver of the growth of precision farming and IT agriculture.



### GNSS (Global Navigation Satellite System)

The GNSS system, based on Topcon's proprietary Vanguard™ technology, features multi-constellation satellite support with Universal Tracking technology to allow each channel to receive any available satellite signal. This assures high-speed, high-precision positioning with centimeter or better accuracy. Topcon GNSS systems are used in a wide range of applications, from surveying and construction to civil engineering and agriculture.



## Infrastructure



### Positioning (distance, angle, position)

Highly reliable 3D measurements are made possible using distance measuring technologies cultivated over many years, and angle measurement systems that leverage advanced digital technologies. These technologies are employed in a wide range of fields from industrial to displacement measuring instruments.



### 3D imaging measurement

This technology enables high-precision, high-speed 3D positioning, surface measuring and modeling using a digital camera. Topcon technology was used in the development of a three-dimensional, 360 degree data and image acquisition system for automobiles that gather geographical data of the surrounding area as it is driven down roads or over other areas.

# Solution

