

F6 Smart (escaner 3d portatil)

F6 Smart es un escáner 3d fabricado por la empresa israelí Mantis Vision

El F6 Smart es el líder del mercado 3D portátil, está especialmente diseñado para la exploración rápida de grandes objetos y grandes áreas con distancias cortas o largas.

Esta basado en un avanzado e innovador algoritmo de codificación patentado. F6 Smart proporciona excelente calidad de los datos que lo convierten en un dispositivo avanzado para la exploración de escenas complejas en cuestión de segundos.

El Smart F6 lleva integrado el software ECHO , un software avanzado, fácil de usar y con altas prestaciones tales como:

- Modos de escaneo avanzados con retroalimentación en tiempo real.
- Potentes herramientas de edición de datos 3D
- Datos de calidad para medir distancias y resoluciones.
- integración flexible a software de terceros basado en Mantis Vision dll o SDK.
- Avanzado sistema de creación de malla con proyección a todo color.
- Alineación de modelos de diversas exploraciones
- múltiples interfaces: Tablet/Laptop/VR
- interfaz de usuario: pantalla táctil/escritorio



Innovaciones del escaner

- LUZ IR (luz infraroja).- Permite escanear en cualquier condición de iluminación de la luz , luz diurna o oscuridad completa.
- Empuñadura ergonómica y recubierta de goma
- No necesita ninguna preparación de la escena- La geometría se descripta por la codificación
- 2 modos de operación : estático y dinámico
- Accesibilidad a zonas ocultas

Conexiones para:

-Sincronización sin hilos de múltiples F6 para capturar objetos en el movimiento dinámico

-Luz de flash

• Facil uso: los profesionales pueden operar con el escáner después de un corto aprendizaje.

• Diseño adecuado y peso ligero- conveniente para las demandas exigentes del exterior

| Aplicaciones | | | | | |
|---|---|---|--|---|---|
|  |  |  |  |  |  |
| Animación por Ordenador | Arte | Arqueología | Personas | Industria | Educación |

The F6 SMART™ Handheld 3D Camera

The handheld F6 SMART™ Camera combines two video cameras:



Figure 2 – The F6 SMART™ Handheld 3D Camera

- A Color (RGB) Camera, and
- An Near-Infrared Camera (the NIR Sensor).

It also employs a laser-based infrared (IR) light emitter (the Projector).

The cameras and projector are mounted on the ends of an anodized aluminum dowel, coated with an ergonomic rubberized hand grip.

Mantis Vision's 3D Scanning Technology

Mantis Vision's technology was developed to enable 3D capturing of highly dynamic scenes for high-resolution model creation.

3D shapes and objects are captured during free motion, and tolerates operation from moving platforms. This is achieved by projecting a single coded-light pattern, which contains all the indexing information required by our Structured Light triangulation algorithms. This way, a complete 3D range-image is captured by a single "camera snapshot".

Mantis Vision Ltd. developed a unique single pattern codification method allowing the distinct identification of hundreds of times more points than any other method available in the market today. Despite the code's "shortness" (i.e. made of a single pattern only), it incorporates a powerful error detection/correction mechanism.

As a result, the technology provides several unique and highly beneficial attributes:

- High accuracy levels of depth measurements.
- Ability to capture images while in free motion—the camera, the object and the

captured environment can both be freely moving.

- Dense sampling at high resolutions of hundreds of thousands of points per single frame.
- No dependency on color or texture and the ability to project at invisible wavelengths such as Infrared (IR).
- Operation under challenging lighting conditions.
- Ability to acquire challenging targets, such as shiny and largely contrasted surfaces.

How does it Work?

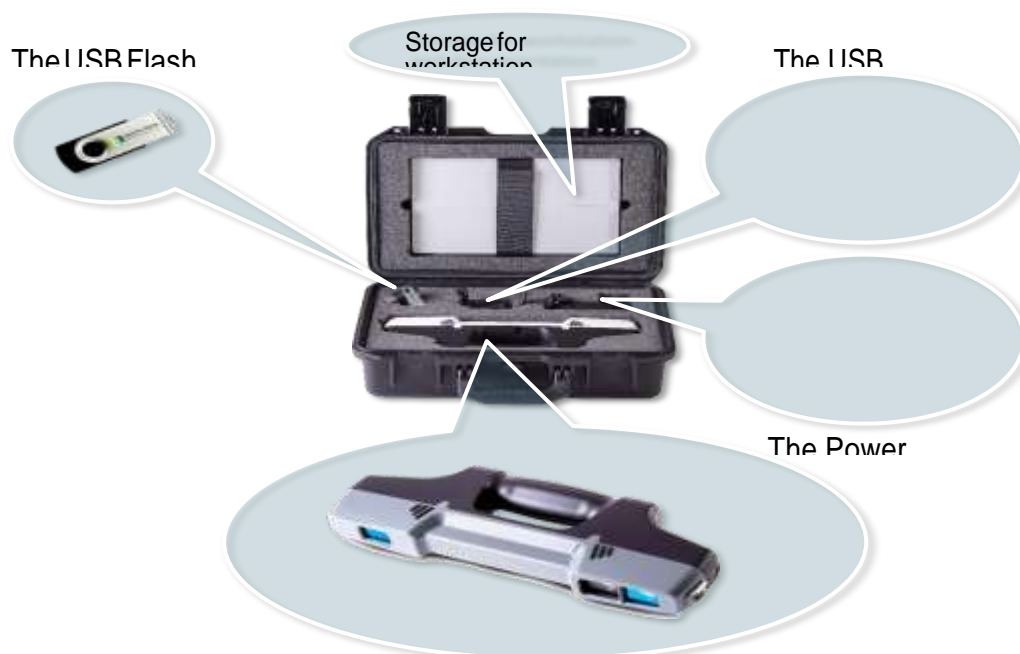
The complete Mantis Vision system includes two (2) components:

- A 3D acquisition unit (The Camera) and
- A software application to process, manipulate and visualize the 3D data.

The camera, which necessitates single hand operation, consists of dual video camera channels (color and depth) and a light projector, all embedded into a single ergonomic handheld device.

Capturing the 3D environment is like using a regular (2D) video camera. The only difference between a 2D video camera and the Mantis' 3D Camera is the type of flash light (projector) used.

TheF6SMART™ Kit



F6 SMART™ System Dataflow

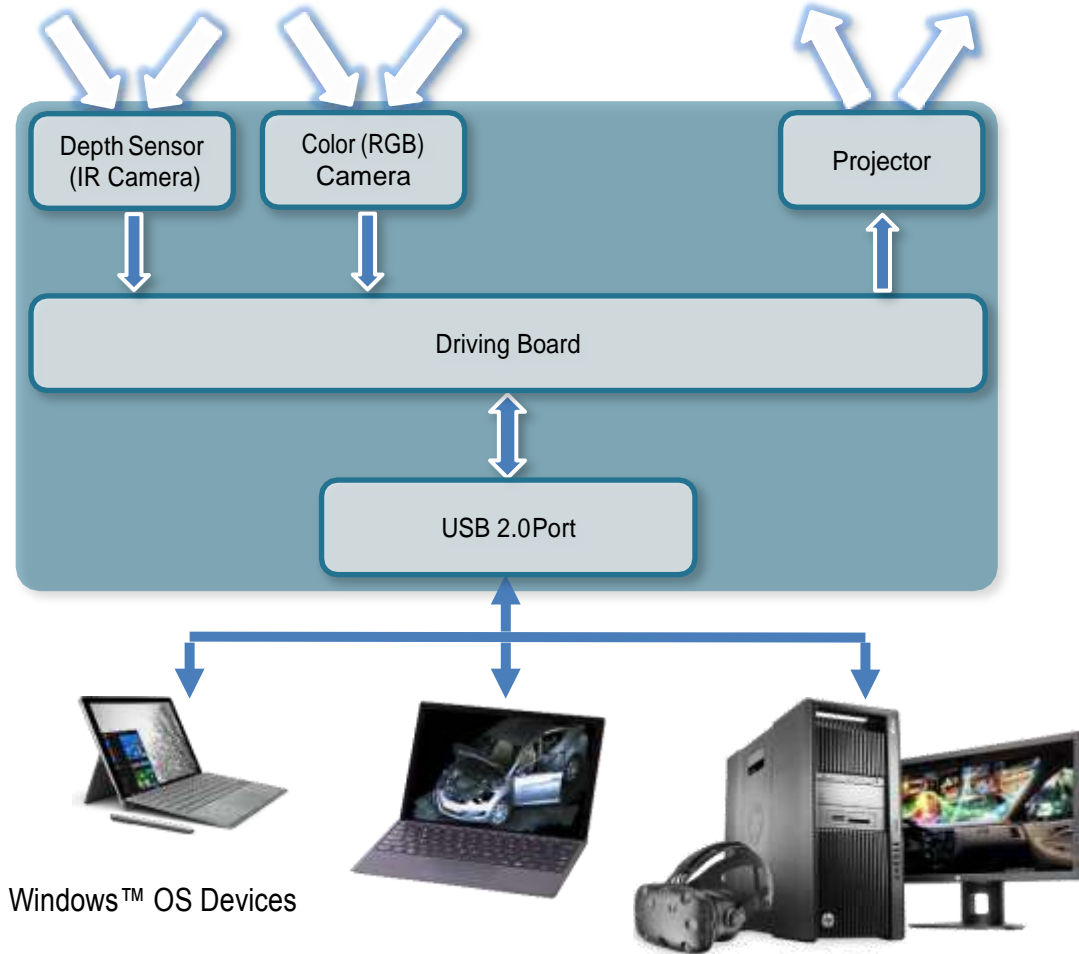


Figure 3 – F6 SMART™ System Dataflow

During acquisition, the video streams are recorded and processed on the workstation while each video frame is decoded in real-time into a dense, color point-cloud of the three-dimensional distance measurements (~ 60,000 points of data per frame). The software automatically registers (aligns) the frames in the 3D video to recreate the 3D geometry of the scene and its color information



Fast & Robust

F6 Smart built to operate in tough environment and under difficult light conditions



Powerful image projection

F6 Smart 1.3 megapixel RGB camera use to capture high-quality images during scanning and Echo smart algorithm convert those images to a photorealistic mesh texture



High Accuracy

Professional - grade measurements: accuracy of up to 0.1 mm (0.004 in) and resolution of up to 0.1 mm (0.004 in)



Echo Software

A powerful scanning & 3D data editing tool, suitable for both professional and unprofessional users, both easy to use and high-performance software with strong denoise options and image projection mesh