

# MEMS Mirrors in Medical Devices



# Fred Wood – Chief Scientist at AccuVein

- Mr. Wood has over 30 years' experience in research and development and is the lead inventor on a vast number of patents.
- Several of Fred's patents are for high-speed laser scan mirrors, and laser scanning related technology.
- Fred is the inventor of the AccuVein scanned laser vein illumination device. He designed and prototyped the first working device in 2006.

# AccuVein's Latest Device – AV500

- The AV500 is based on ST mems mirrors and mirror driver chipset
- The AV500 uses the ST mirrors to create an 80hz raster scan. An infrared, and a green laser are coaxially aligned, and scanned. This enables the device to capture an infrared image of veins under the skin, and simultaneously reproject a green, contrast enhanced image of the vein map to help nurses start IVs on the first try.



# The Advantages of Laser Scanning over Camera/Projector-based Vein Illumination

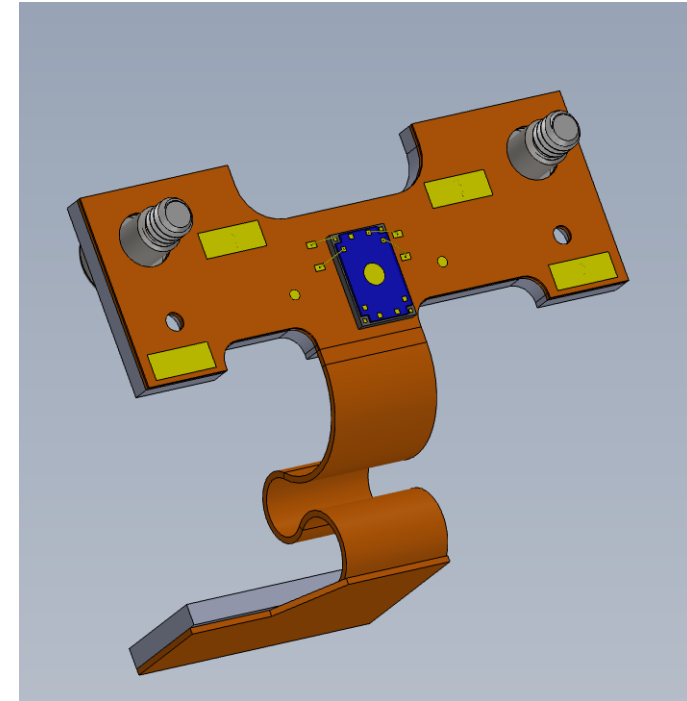
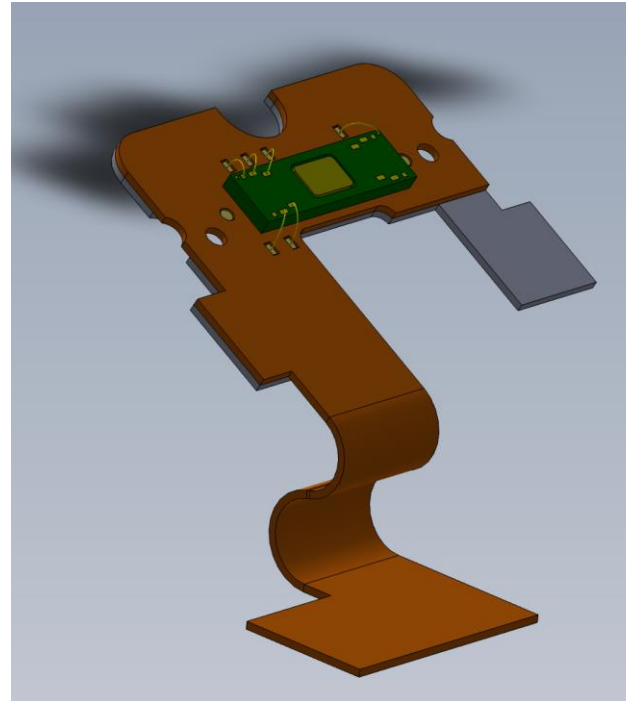
- Infinite depth of focus. Camera based devices need manual focus
- Highly efficient laser light = smallest battery, no cooling fan needed.
- Rugged, permanently aligned imaging and projection scan engine.
- Identical input and output scanning allows the fastest processing time.



AccuVein AV500 projecting an image on veins  
AccuVein AV500 projecting an image on veins

# Advantages of ST Mems

- Small size
- Rugged. Greatly enhanced reliability vs older non-mems scan mirrors
- Low power consumption
- Reliable position sensing



ST mems mirrors mounted on flexes

# AV500 Scan Engine

