

Remote Training & Innovative Knee Surgeries with Vuzix Smart Glasses at Linkou Chang Gung Memorial Hospital



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Linkou Chang Gung Memorial Hospital in Taiwan has successfully conducted two groundbreaking knee surgeries using Vuzix smart glasses and the Facepro medical video streaming platform, in addition to the primary knee replacement instruments provided by the United Orthopedic Corporation.

Challenge

Conventional live surgical broadcasts often encounter challenges such as obstructed camera angles, limited surgical space, and constraints within sterile areas that impede camera positioning and real-time adjustments. Issues like overexposure from surgical lighting and unreliable internet connectivity in operating rooms frequently compromise video quality. Moreover, existing wearable video recording equipment tends to be cumbersome and uncomfortable, with complex setup procedures.

Solution

To overcome these challenges, the operator wore a pair of Vuzix M400 smart glasses, which presented a first-person perspective of the procedures. This innovative approach facilitated real-time interaction between the conference room audience and the operator, providing a detailed view of the surgery. With the advanced software, the host can remotely adjust the camera to accommodate varying lighting conditions and use detailed annotation tools to highlight specific aspects of the procedure. Dr. Sheng-Hsun Lee presented the first live surgery, showcasing U2™ primary total

knee replacement. During this presentation, sharing the first-person view of the gap-balancing techniques using Vuzix smart glasses brought significant value. The audience observed the operator's sequence and decision-making process, including alignment angles, flexion/extension gaps, and soft-tissue tension within the joint.

In the second surgery, Dr. Yu-Chih Lin showcased the U2 PSA™ (Posterior Stabilized Augmentable) revision knee system. This system accommodates various augments and extension stems to restore joint stability and address bone loss, providing surgeons with flexibility for



complex cases. Dr. Lin wore the M400 smart glasses, providing a clear, unobstructed view of his surgical procedure in real time. This allowed participants in the conference room to follow the operator's actions closely and ask questions about complex scenarios.

Results

The integration of Vuzix M400 smart glasses and Facepro's state-of-the-art medical video streaming platform effectively provided the surgeon's first-person viewpoint in a 4K high-definition live broadcast. This setup enabled real-time recording and interaction with the surgical procedures for conference room audiences. The event achieved exceptional clarity and detail, and incorporated multiple operating room cameras and medical imaging systems, setting a new benchmark in surgical education and live medical broadcasting.

