

Enabling Next-Generation Surgical Connectivity

Medtronic

Touch Surgical Ecosystem

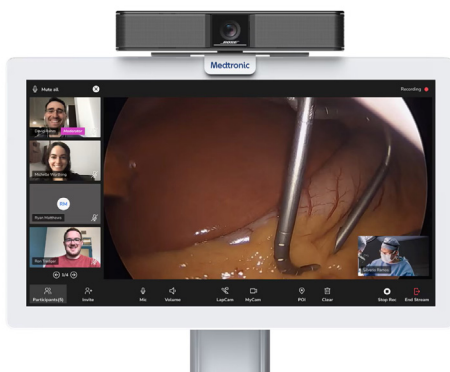


| Introduction / Background

Medtronic is a global leader in medical technology, committed to advancing surgical outcomes through digital innovation. Their Touch Surgery Ecosystem is a suite of integrated tools covering surgical video, simulation, connectivity, analytics, and AI, designed to modernise how operations are performed, taught, and reviewed.

As Medtronic expanded this ecosystem into live surgical streaming, AI-assisted insights, and intraoperative connectivity, they needed physical platforms (powered carts, mounts, and modular systems) to support their hardware deployment in operating rooms.

Bytec Healthcare partnered with Medtronic to supply the mobile systems and integration required to bring this digital vision into real hospital environments.



| The Challenge

Medtronic's ambition was to make live, remote surgical streaming and advanced analytics a seamless part of the OR workflow. In practice, this meant deploying secure video, imaging, data transmission, and compute hardware, all in sterile, high-stakes surgical environments.

Key challenges included:

- Ensuring stable power, cooling, and connectivity in mobile units so there is zero downtime or signal disruption.
- Managing the physical layout: integrating video transmitters, cameras, displays, and computing modules without creating cable clutter or interfering with surgical staff movement.
- Preserving sterility and ease of cleaning, especially given the sensitive OR environment.
- Provisioning modular mounts to adapt to different surgical room configurations and equipment setups.
- Coordinating with Medtronic's software, AI, and video analytics teams to ensure hardware reliability under demanding clinical use

Through this synergy, patients, clinicians, and institutions benefit: safer surgical environments, more accessible training, and better-informed surgical outcomes.

| Solution / Innovation

Bytec's role was to design, manufacture, and deliver the mobile power GeniTec, Novos mounting systems, and integrated housings that could reliably host Medtronic's Touch Surgery hardware. Over the course of the collaboration:

- We engineered compact, high-mobility carts that support the streaming, computing, and display modules, with secure cable routing and modular mounting options.
- The units were built to handle continuous OR use – offering robust power delivery (GeniTec battery or mains assist), thermal management, and connectivity pathways.
- Design decisions focused on sterility and ease-of-maintenance: surfaces that are easy to wipe down, sealed compartments, and minimal external cable exposure.
- We collaborated closely with Medtronic's digital teams to ensure hardware interoperability with their live-streaming and video-analytics systems, making sure signal integrity and latency stayed within strict clinical bounds.
- Our Novos Mounting Arm allowed the hardware assemblies to adapt to different surgical room configurations, whether ceiling-mounted, wall-mounted, or free-standing.

“Throughout this process, Bytec acted as the trusted partner, taking Medtronic's vision and ensuring the GeniStand workstation could meet real-world clinical demands.”



| Outcomes & Impact

The partnership enabled Medtronic to roll out Touch Surgery's live streaming and AI-powered performance analytics in OR environments. Key outcomes include:

- Operating rooms now support secure real-time streaming of surgeries, allowing remote audiences, trainees, consultants, or specialists, to observe procedures without being physically present.
- AI-enhanced insights (such as instrument detection, workflow analytics, and anatomy recognition) are layered onto surgical video, helping surgeons review and improve performance.
- Medtronic's technology helps reduce geographical barriers in surgical training, enabling remote mentorship and greater access to surgical education.
- From Bytec's side, our hardware solutions allowed Medtronic's software tools to function reliably in real clinical settings, giving them confidence to scale deployments across hospital networks.



Bytec Healthcare Ltd,
Unit C4 Rock Business Park,
Washington, West Sussex,
RH20 3GR



Line: **(+44) (0) 1737 378 820**



Email: **enquiry@bytechealth.com**

visit www.bytechealth.com
or use the QR link ➔



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