

ADVANCED SURGICAL TOOL RETRIEVAL ARM

BACKGROUND

Personnel shortages in operating rooms lead to **surgical delays and cancellations**, straining hospital efficiency and compromising patient outcomes.



\$24 B

COST TO HOSPITALS
SINCE 2020 DUE TO
STAFFING SHORTAGES



3.2 M

PROJECTED DEFICIT
OF HEALTHCARE
WORKERS BY 2026

For patients, especially in under-resourced areas, these delays limit access to timely, quality care. These shortages contribute to clinician burnout, decreased efficiency, and financial strain on hospitals.

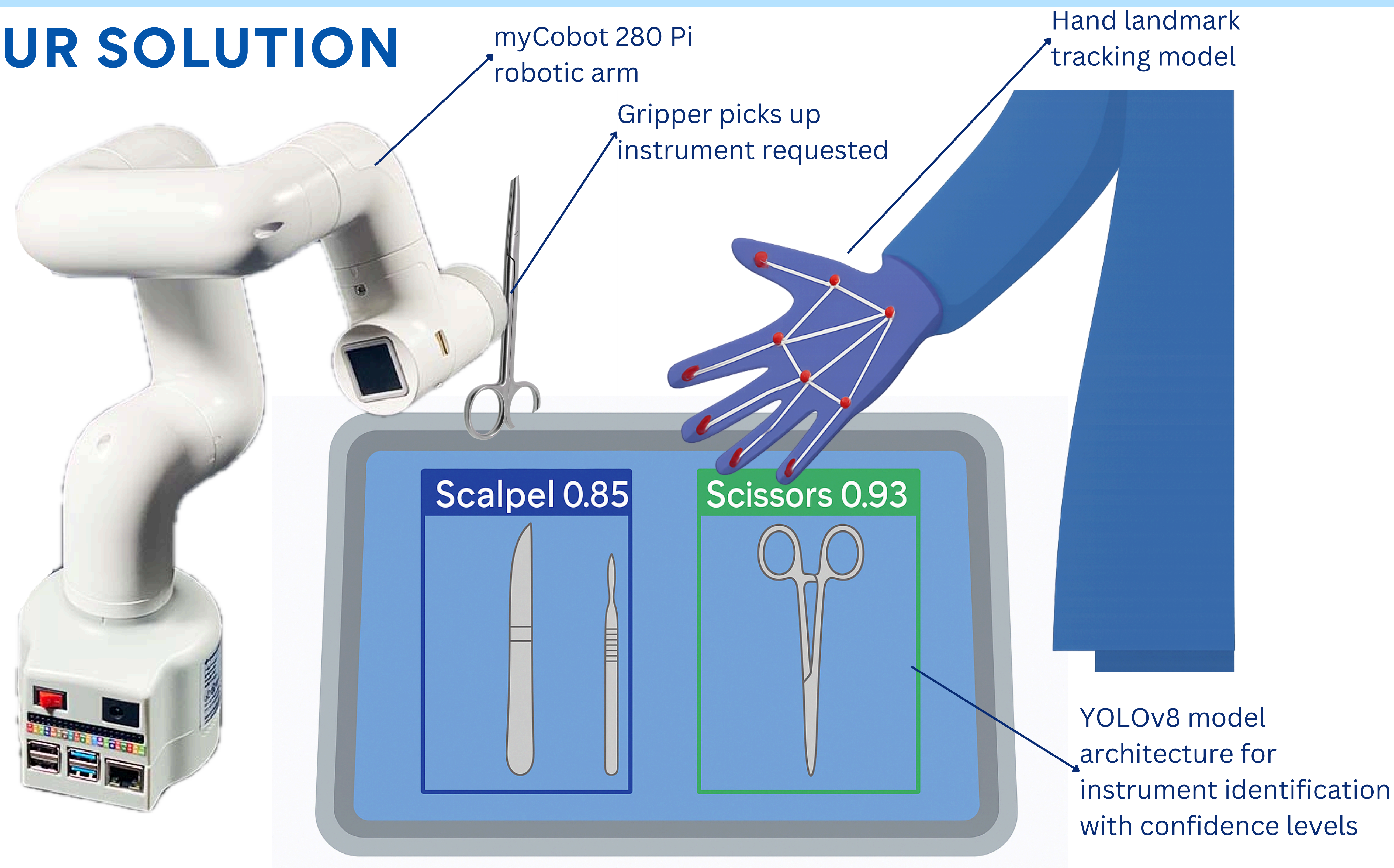
OPPORTUNITY

Surgical care providers **need a method of manipulating a variety of instruments during surgical intervention** in order to minimize delays caused by personnel shortages.

USER NEEDS

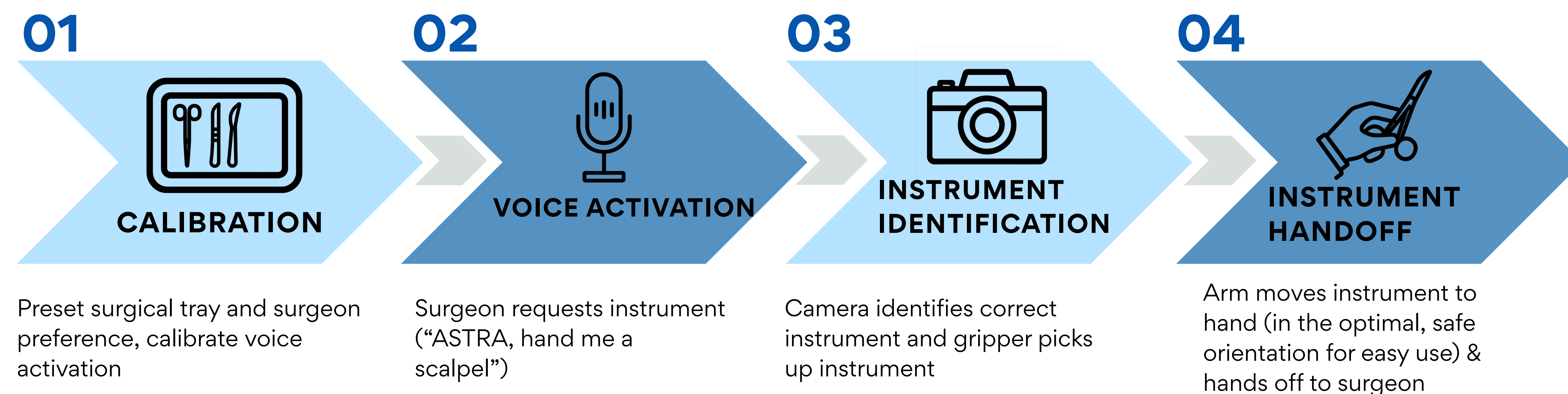
- **Maintain the sterility** of the sterile field and sterility of all instruments
- Have **low latency** to mimic human response times
- **Integrate into the surgical workflow** without requiring major process challenges

OUR SOLUTION



The Advanced Surgical Tool Retrieval Arm (ASTRA) robot **optimizes the intraoperative workflows and manages surgical instrumentation**. ASTRA reduces the need for human hands in repetitive tasks, enabling surgeries to proceed without unnecessary delays and improving overall outcomes.

HOW DOES ASTRA WORK?



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[1] American Hospital Association. Health Care Workforce Challenges Threaten Hospitals' Ability to Care for Patients. November 2021.
[2] Johns Hopkins Children's Center. Johns Hopkins Children's Center Causes of Surgery Delays and Cancellations, Tableau Data.
[3] Gooch K. Hospitals confront surgical tech shortage. Becker's Hospital Review. September 5, 2023.