

Research Project

ARALPaN - Augmented Reality Assisted Laparoscopic Partial Nephrectomy

Third-party funded project

Project title ARALPaN - Augmented Reality Assisted Laparoscopic Partial Nephrectomy

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Organisation / Research unit

Bereich Operative Fächer (Klinik) / Klinische Forschung in der Chirurgie (Rosenthal)

Department

Project start 01.12.2012

Probable end 30.11.2014

Status Completed

The project "Augmented Reality Assisted Laparoscopic Partial Nephrectomy" introduces an innovative and progressive surgical navigation system used for kidney operations. The navigation is based on a commercial electromagnetic tracking device. It was shown that the kidney can be tracked noninvasively by inserting an electromagnetic sensor over the urinary passage into the kidney. Since the proposed navigation system incorporates an electromagnetic tracking system, the positions and rotations of surgical instruments, such as the laparoscope or the grabber, can be determined straight forward. In ex-vivo experiments on pig kidneys, an augmented reality alignment error of $2.1 \text{ mm} \pm 1.2 \text{ mm}$ was achieved.

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