

Da-Vinci Surgical System

Prashil Patel, Biomedical Engineering, University of Rhode Island, BME 281,
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I. Introduction

Da-Vinci surgical robot is perhaps the most exciting surgical machine ever created by Intuitive Surgical. Da Vinci surgical robot comes with RoSS Simulator, a stand-alone simulator that enable doctors to convey necessary training operate the Da Vinci surgical robot, without any necessity to run the da Vinci Surgical Robot itself.

This surgical system is comprised of three major components: the console (through which the surgeon performs the operation), side robotic cart (placed by the side of the patient) that has 4 robotic arms that can be manipulated by the surgeon from the console, and a high-definition 3D vision system.

II. Background

The da Vinci Surgical System has been cleared by the FDA for performing a variety of surgical procedures. Da Vinci robotic surgery is used to perform different procedures such as surgery for prostate cancer, hysterectomy and mitral valve repair. It is currently being used in more than 800 hospitals across America and Europe.



III. Discussion

The da Vinci system's three dimensional magnification screen allows the surgeon to view the operative area with the clarity of high resolution. The one centimeter diameter surgical arms represent a significant advancement in robotic surgery from the early, large-armed systems such as the PUMA 560. With such miniaturized operating arms, the da Vinci system has been able to remove the need to use the sides of the incision walls for leverage. This advancement allows for less contact between exposed interior tissue and the surgical device, which greatly reduces the risk of infection. The "Endo-wrist" features of the operating arms precisely replicate the skilled movements of the surgeon at the controls, improving accuracy in small operating spaces. The da Vinci system has been approved by the FDA for use in both adult and pediatric procedures

Citations:

- <http://www.ncbi.nlm.nih.gov/pubmed/22044556>
- <http://www.roboticoncology.com/history>
- http://www.intuitivesurgical.com/products/davinci_surgical_system/
- Wikipedia
- <http://www.davincisurgery.com/?id=it&gclid=CIPbr6rgt6wCFYqA5QodjHAHQ>