World Academy of Science, Engineering and Technology
International Journal of Biomedical and Biological Engineering
Vol:12, No:06, 2018

Low-Cost Robotic-Assisted Laparoscope

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Abstract : Laparoscopy is a surgical operation, well known as keyhole surgery. The operation is performed through small holes, hence, scars of a patient become much smaller, patients can recover in a short time and the hospital stay becomes shorter in comparison to an open surgery. Several tools are used at laparoscopic operations; among them, the laparoscope has a crucial role. It provides the vision during the operation, which will be the main focus in here. Since the operation area is very small, motion of the surgical tools might be limited in laparoscopic operations compared to traditional surgeries. To overcome this limitation, most of the laparoscopic tools have become more precise, dexterous, multi-functional or automated. Here, we present a robotic-assisted laparoscope that is controlled with pedals directly by a surgeon. Thus, the movement of the laparoscope might be controlled better, so there will not be a need to calibrate the camera during the operation. The need for an assistant that controls the movement of the laparoscope will be eliminated. The duration of the laparoscopic operation might be shorter since the surgeon will directly operate the camera.

Keywords : laparoscope, laparoscopy, low-cost, minimally invasive surgery, robotic-assisted surgery
Conference Title : ICME 2018 : International Conference on Medical Engineering
Conference Location : Venice, Italy
Conference Dates : June 21-22, 2018