



Autonomous Robotic Laparoscope Based on Eye Tracking

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Summary: An autonomous control framework for robotic laparoscope using eye tracking

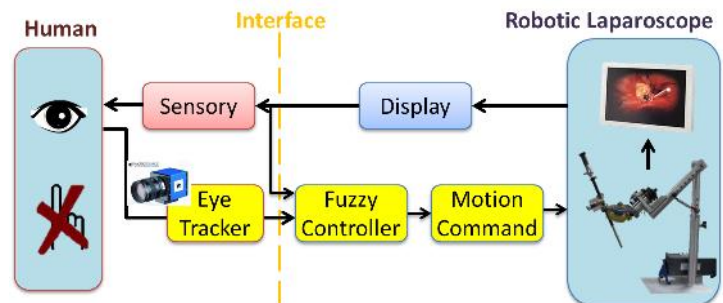
Description: One problem inherent with known laparoscopic surgery techniques is inconvenient, limited visualization in comparison with traditional open surgery. The surgeon's view is limited to only what is directly in front of the scope, which must frequently be readjusted. Currently, laparoscope adjustments rely on the surgeon's intervention by either verbally communicating with the human assistant or physically manipulating a robotic holder through various control interfaces. This invention is of a two-dimensional eye tracking system that allows the surgeon to naturally and effortlessly control the robotic laparoscope. This system allows the robot to unobtrusively monitoring the surgeon's gaze movements to track her/his viewing attention and to automatically adjust the field of view correspondingly. This fully eliminates manipulation of the laparoscope from the surgeon's end, which drastically reduces the learning curve, using difficulty, and operation time and cost.

Main Advantages of this Invention

- Provides a natural interface between surgeon and camera
- Does not restrict the surgeon's head mobility
- Increases eye-tracking workspace

Potential Areas of Application

- Laparoscopic surgery



The intuitive gaze guidance framework

ID number: 15006

Intellectual Property Status: US provisional patent filed

Opportunity: We are seeking an exclusive or non-exclusive licensee for implementation of this technology.

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