Endoscopy Tracking Device & Quality Indicator - The Colometer
TECH ID #: 331.29.31

Background
Researchers at the University of Calgary have developed a novel, real-time colonoscopy video quality indication system for evaluating the adequacy of both image clarity and withdrawal velocity. This software-based system employs a novel image processing algorithm which detects the levels of image clarity, withdrawal velocity, and level of the bowel preparation in a real-time fashion from live video signal. The Colometer approach for blurriness measurement consists of an instant calculation of the image variance in a frame-by-frame evaluation setup. This software-based, automated image analysis tool provides three major outputs:
1) Real-time visual feedback indication of image changing velocity and image blurriness to the endoscopist
2) Automated summative statistics report provided immediately following the colonoscopy, including withdrawal time, % time of adequate visualization, and a novel graph of dynamics over time,
3) Automated stool coverage analysis for the documentation of bowel preparation.

In order to achieve a comprehensive overall evaluation of colonoscopy procedures, inventors have further developed a one-piece miniature endoscopic device that tracks the colonoscope movement. No modifications are required from the existing colonoscope manufacturers as this tracking is placed externally to the colonoscope. The sensors embedded in this device tracks the motion of the cord and provide information about the forward and backward travel on endoscope in real time.
Area of Application
- Colonoscopy

Competitive Advantages
- A colonoscopy quality reporting tool that provides real time visual feedback to endoscopist
- Simpler, Cheaper, and faster than current calculation methods

Stage of Development
- A comparative study animal and human study was performed to validate the functionality of the proposed algorithm by comparing the system outputs during insertion and withdrawal for three colonoscopy procedures. The results obtained from the automated system strongly agree with the endoscopist' quality assessments.

Intellectual Property Status
- Patent Filed

Publications
