

Masterarbeit

Software-based evaluation of a novel input device for medical robots

At the Institute of Medical Device Technology (IMT) at University of Stuttgart we work in the field of flexible and rigid surgical robots. Especially for flexible robots, an appropriate input console is needed.

With the development of robotic colonoscopy, an important requirement has become the design of an ergonomic user console. To achieve this goal, a modern console needs to provide all the information required to perform the procedure as well as an ergonomic design to reduce the fatigue and stress of the user. During first project, two models of a novel ergonomic input device were developed, built and preliminarily evaluated. Also, a software environment ("unity") and a first virtual colonoscopy simulator is available.

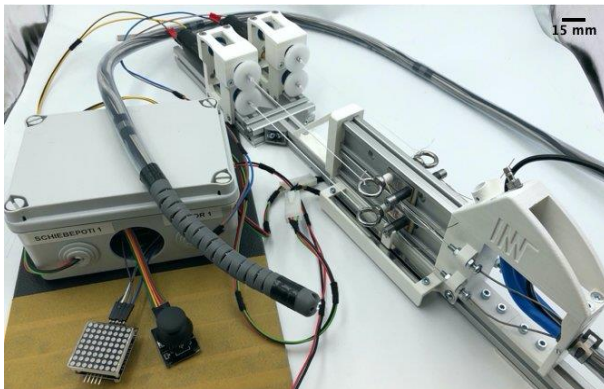


Abbildung 1 Prototype of a robotic endoscope developed at IMT, Stuttgart [MA D. Schröck]

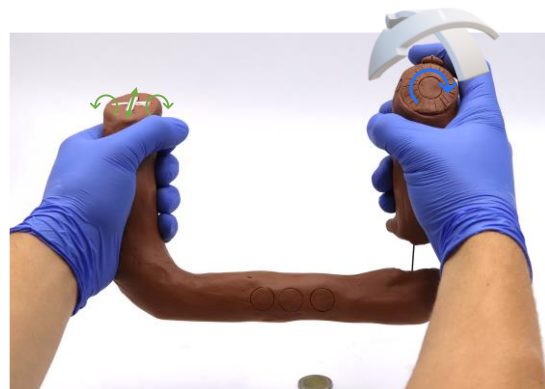


Abbildung 2 Prototype of a novel input device for robotic colonoscopy [MA L. Heisterberg]

Aim and Objective

1. To review preliminary work and results as well as the literature in usability testing of medical robotic devices;
2. To design a concept for a study of ergonomics and usability;
3. To validate the hypothesis in an experiment with human subjects;
4. To deliver a scientific paper about the achieved results.

The project is a collaboration between the Division of Imaging Science and Technology, University of Dundee, Scotland (<https://www.dundee.ac.uk/medicine>) and IMT, Stuttgart, Germany. The project can be worked on in Stuttgart, Dundee or both. Please approach us for funding possibilities.

Expertise requirements:

- Previous experience in programming
- Basic knowledge of microcontrollers
- Willingness to perform, independence and communication skills

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