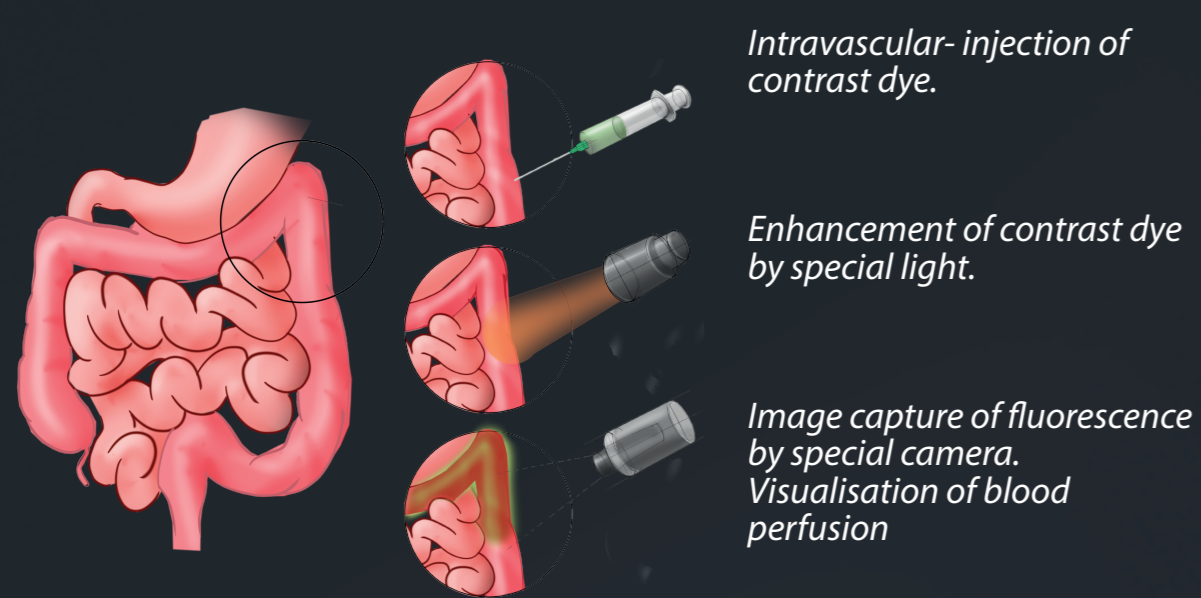


Because of cancer in the colon, parts of this organ might be surgically cut out to eliminate this disease. After removal, the residual parts are connected by means of a suture. A leakage of such connection is a severe complication and potentially life-threatening for the patient and associated with a poor healing of this surgical wound. Adequate blood perfusion plays a key role in this healing process and thus lowers the risk of such leakages. Understanding the tissue perfusion is therefore of the utmost importance.

By means of a contrast dye, a special light and camera, this perfusion can be made visual, even underneath tissue. This imaging technique can



provide the surgeon with essential information via screens that is not visible by the naked eye during an open surgical procedure.

However, these images are still subjected by, amongst the perception of the individual surgeon, various external factors. Ideally, we could provide objective information that is not susceptible to these factors. To do so, software and hardware developments are needed. This project contributes to the development of the hardware. Factors that affect this objectification are allotted and it is researched how design can control or even eliminate them. The project focus on two of the major factorial influencers namely; external light and the manner of acquisition.

The proposed design includes the means to exclude this external light and a manner to standardise distance from laparoscope to the surgical site. The design serves to assess if controlling these factors truly improves the objectification of the imaging technique in a pre-clinal setup.

Intraoperative assessment of tissue perfusion

Jan Wijnand Okkerse

Design for the intraoperative assessment of tissue perfusion
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Integrated product design, Medisign

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