



Video Streaming-based User Interface for Medical Applications

Project Management and Software Development
for Medical Applications

General Info

Project Title: **Video Streaming-based User Interface for Medical Applications**

Contact Person: **Ralf Stauder**

Contact Email: stauder@in.tum.de

Project Abstract

In a modern operating room, usually multiple imaging systems are available with monitors attached to the devices. In order to enable the sterile surgeon to directly use them, these image sources should be streamed to a different, sterile-draped device with an overlaid UI.

Background and Motivation

Modern surgical interventions rely more strongly on different intra-operative imaging systems like ultrasound, or are based on pre-operatively acquired imaging data like CT or MRI volumes. While those dataset are already available during a surgery, the devices displaying them have to be arranged around the sterile area and can not be used directly by the surgical staff. They have to rely on the indirect manipulation through a non-sterile nurse, which is a source of delay, frustration and possible errors.

Student's Tasks Description

Based on the video streaming technology available (through e.g. VLC), a platform should be developed

that displays this video source and is able to overlay a simple but customizable user interface directly onto the displayed video stream.

Technical Prerequisites

Programming in C++ or C#

Knowledge of video streaming is a plus

Administrative Info

Working Time: ~100h

Project Location: **Garching**

Required Equipments: **Laptop**

Timeline and Milestones

There will be 3 milestones including presentations, that will be defined in more detail with the student.

References

Soehngen, E., Rahmah, N. N., Kakizawa, Y., Horiuchi, T., Fujii, Y., Kiuchi, T., & Hongo, K. (2011). Operation-Microscope-Mounted Touch Display Tablet Computer for Intraoperative Imaging Visualization: Technical Note and Comparison with Other Modalities. *World Neurosurgery*. Elsevier.