

Integration of the Mobile Base for the Robotic Circulating Nurse in Operating Room



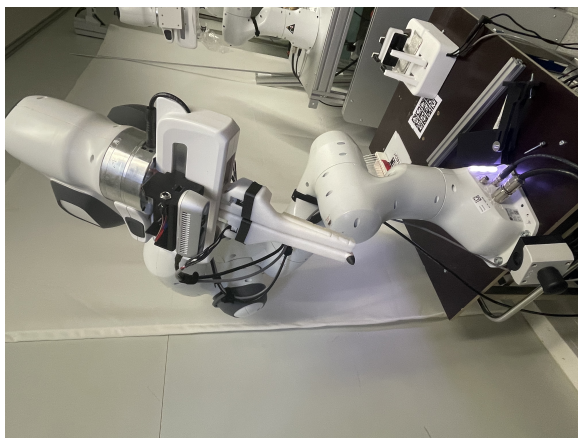
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Description

During the performance of surgical interventions, activities must be performed on the periphery of the operating table, i.e. in the non-sterile area of the operating room. Due to their non-sterile nature, these tasks are not performed by the surgical team itself but are the responsibility of the so-called “circulator”, which is free to move in the non-sterile area. The function of the circulator is essential for an efficient surgical procedure. However, clinical practice is often associated with challenges, such as multiple workloads due to parallel activities, insufficient training, and lack of staff.

The AURORA project aims to develop a context-sensitive mechatronic assistance system that can move freely in the non-sterile area of the operating room and within the operating wing between the individual rooms. The main task of this assistance system is to replace human circulators and to support the surgical teams in delivering tools and materials during operations. The research focus of the I6 chair in this project is on developing context-sensitive actions of the robot, including pre-operative planning tools and context-dependent intraoperative execution of the planned actions.

We are looking for a student assistant (duration: 6 months, max. 20 hours/week) who can help us in evaluating the current developments, identify the existing weak points by performing expected benchmarks, and facilitate the integration into the mobile base in a robust way.



Tasks and objectives

This student work includes the following tasks:

- Enhancing the movement of the robot station and operation of the arm,
- Implementing the final top-level workflows for device adjustment,
- Contributing to technical and clinical evaluation of the final demonstrator,
- Cleaning up the scripts and optimizing the workflow,
- Integrating ansible/docker structure in CI to ensure that the package can always build and that docker is always working,
- Facilitating access to the remote pc in demonstrator and shipping the auroros code,



Faculty of Informatics

Chair of Robotics, Artificial Intelligence and Embedded Systems

Supervisor:

Prof. Dr.-Ing. Alois Knoll

Advisor:

Dr. Sina Shafaei

Research project:

AURORA

Type:

HiWi (Bachelor/Master)

Research area:

Medical Robotics

Programming language:

Python

Required skills:

Embedded, C/C++, ROS

Language:

English

Date of submission:

28. März 2023

To apply for this position please send your CV and transcripts of results to Dr. Shafaei:

E-Mail: shafaei@in.tum.de