Robot Assisted Vitreo-Retinal Surgery Project

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Origin of this project

>7 Patient a week (Clinikum Rechts der Isar) with RVO
>16 Mio Patients Worldwide (2% CAGR)

⇒ Inevitable Blindness
Requirements Definition

Understanding of the clinical needs by attending surgeries
Collaboration with current active groups (JHU, Tokyo, TU/e)
Motion tracking and analysis of the surgeons
Force and torque modeling
Prototypes

What do we want?

- Precise
- Intuitive
- Easy Integration
- Easy certification
- Cheap

WE WANT TO TRANSLATE THE TECHNOLOGY TO THE CLINICS
Patent pending IDEA: differential displacement of two translational motions is converted to one translation and one rotation.
Robot Size: 185X44X226 mm (Smaller than an average surgeon's hand)
Robot Weight: 306 g (Can be mounted on patient’s head)
What do we now have?

- **Precise** *(Piezo Technology)*
- **Intuitive** *(6 DOF Manipulator, Easy Input Device, Training Simulator)*
- **Easy Integration** *(Compact, Conventional surgical tools)*
- **Easy certification** *(Class IIb)*
- **Cheap** *(Simple design, off the shelf components)*

Thanks for your attention!

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