

Project Title

Accessible Surgical Robotic System

Person-in-charge

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Project Description

Cornerstone Robotics (CSR) is a company dedicated to forging the accessibility of robotic surgery and high-quality medical services to patients in China and worldwide. Robotic surgery has been developing for many years, with soft-tissue laparoscopic surgical robots being its key domain, however, the major issue that surgical robotics currently face is accessibility, which is the main cause for stunted market adoption worldwide from both a regional standpoint and surgical specialty standpoint. The demand for surgeons' services in both Hong Kong and Mainland China continues to greatly outweigh the supply due to an aging population and more elderly people needing surgery, while training in the field remains inadequate. Surgical robotic technology has demonstrated better clinical outcomes and can ease the learning curve in surgeon training, however, the high system cost hinders its wider clinical adoption. Prof. Philip Chiu and Prof. Samuel Au found Cornerstone Robotics(CSR) to develop a safe and effective surgical robotic platform that offers accessible robotic surgery, enabling more patients worldwide to cost-effectively benefit from the pinnacle of high-end medical technology.



Accessibility includes four main factors: cost, safety, usability, and surgical indication coverage. In this project, we propose to build off of our first-generation multi-port laparoscopic surgical robot in the following areas: 1) Developing a single-arm robotic platform used in conjunction with the laparoscopic surgical robot; 2) Developing an advanced surgical instrument for supporting robotic gynaecological surgery. These enabling technologies will be integrated together to form a complete system expanding the forefront of robotic surgery to new procedures. This system will be versatile for use in robotic surgery within the urology, gynecology, and general surgery specialties. The clinical focus will cover these specialties and demonstrate the clinical efficacy of this system in phantom, animal/cadaver models, as well as clinical studies.

In addition to the product development component, this project also includes a commercialization component where we will engage in clinical, regulatory, and marketing activities to bring this system to market in Hong Kong, Mainland China, and worldwide. Commercialization work will include the following: 1) Clinical (validation protocol, pre-clinical trial design and implementation, design and execution of clinical trial); 2) Regulatory (technical documentation, CE marking pathway); 3) Marketing (conferences and exhibitions, public relations). The success of this project not only offers significant benefits to patients in Hong Kong and Mainland China but also improves the accessibility of robotic surgery worldwide.