**INTRODUCTION**

- One of the goals of our project is to interface the APL Snake end effector to the LARS.
- The primary aim is to have a controlled motion of the end effector along a specific axis and reach the precise location of coordinates of action point.

**Problem Statement**

- The JHU-APL Snake can be used for performing medical invasive surgeries.
- Since initial stages, it is being constantly upgraded to be a self-sustained surgical tool.
- The Laparoscopic - Assisted Robot System (LARS) is an ideal platform for achieving the same due to its mobility, dexterity, and versatility of use with various end-effectors.
- Treating the LARS and APL Snake as one system, registration should be done between the CT image and actual points of action on the patient body.
- Using vectorial entry method of the LARS, the Snake should be made to precisely insert along a specific axis.

**RESULTS**

- End Point control of the LARS with Snake.
- 3D registration of the action point coordinates from the CT coordinates.
- Simulation of forward kinematics of the LARS.
- Verification of existing kinematics of the LARS.
- Alignment with the insertion axis.

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