

Collaborative development of robot programming with ROS

Date	Place	Partner Organization	Students' Major and Grade	Participants' Information	SIT Instructor
November17 ~November29,2020	Japan	Indian Institute of Technology Delhi	Department of Engineering Science and Mechanics • Undergraduate 1st grade • Undergraduate 2nd grade • Undergraduate 3rd grade • Undergraduate 4th grade • Master 1st grade • Master 2nd grade • Doctor 1st grade	(SIT) Students 7 TA 1 Professor 1 (Indian Institute of Technology Delhi) Students 10 Professor 3	MATSHIRA Nobuto (Department of Engineering Science and Mechanics)

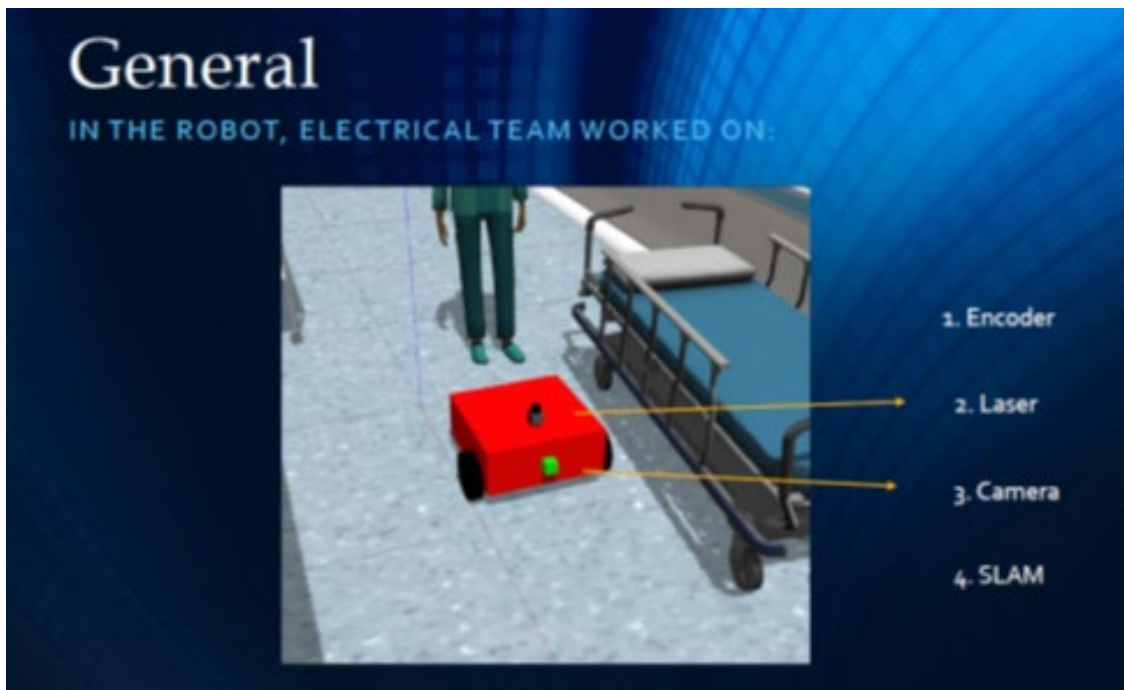


Image1 Mechanical Design of Robot

Global PBL with Indian Institute of Technology Delhi (IITD) on the theme of development of hospital assistive robots under COVID19 was conducted via Zoom online from November 17 to 29. Eight students including TA from the Intelligent Mechanical Systems Laboratory Department of Engineering Science and Mechanics SIT and thirteen students including staff from IITD participated in the project. They were divided into three groups: Mechanical Electrical and Software. The tools used were SolidWorks for mechanical design ROS for control system and Gazebo for simulation all of which are international standards. In response to the required specifications Gr1 designed the robot Gr2 designed the sensor and controller and Gr3 integrated the results of Gr1 and Gr2 into the simulation for robot navigation. This time the students were able to communicate with each other using Slack etc. and even confirmed the basic motions of the robot. On the basis of this it was decided to connect to the next PBL with the goal of joint research. Although there were many constraints main meetings in the night it was a PBL with rich contents.

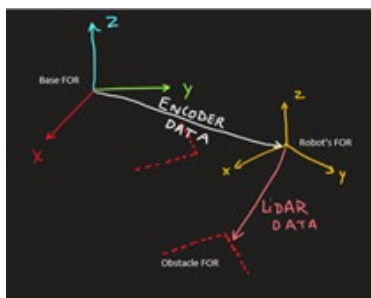


Image2 Coordinates

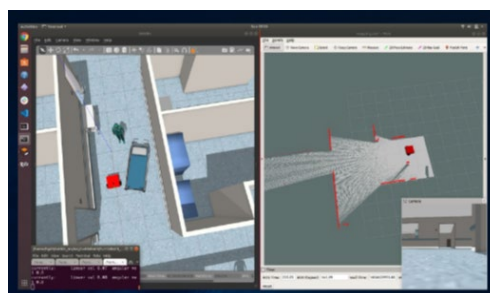


Image3 Navigation in Hospital

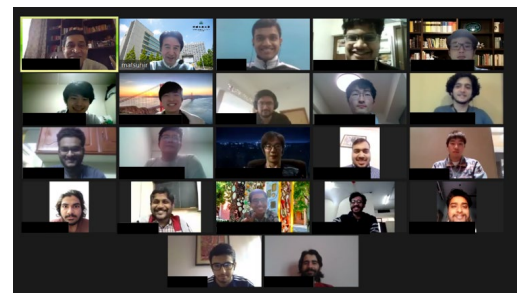


Image4 PBL Member