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Development of a small scale work-cell to demonstrate remote handling inside a tokamak

Abstract

Objective and Scope of Project

Remote Handling (RH) is an approach to perform manual inspection and maintenance tasks at remote locations without being physically present at the workspace. Unlike conventional industrial robotic systems, which are pre-programmed to do a certain task, the RH activities of a tokamak are much complex. All RH equipment of a tokamak work in a toroidal workspace with a space limitation. The RH equipment for tokamak have a long reach and handle heavy payload with a fair accuracy. In many cases, the RH equipment has to enter constrained spaces for inspection and maintenance. Also, the in-vessel environment changes slightly after every plasma operation, thus the RH operations are dynamic. The RH operations typically consist of servo manipulators and mobile robots working synchronously with semi-automated control system. The main objective of this project is to demonstrate the precision and accuracy in handling RH operations in a scaled environment.

The project work include designing the work-cell including scaled down models of the robotic equipment, programming of the control interfaces, assembly and testing of the integrated system.

Number of students - 02 (Max)

Eligibility: Only students of Electronics/Electrical/ Instrumentation & control Engineering branches can submit their application at following email addresses

Email: naveen@ipr.res.in [Guide e-mail address], kgotewal@ipr.res.in [Co-Guide e-mail address] and project_ee@ipr.res.in [Project coordinator's e-mail address]

Phone Number: 079-23281022, +919574689895 [Guide phone number]