Project Overview

DIII-D employs a 6-axis robotic arm for tasks inside a fusion reactor for welding and calibrations, but its range of access is limited. This project aims to integrate a curved rail into the system, increasing the range and capabilities of the robot arm.

Motor Control System

- The cart stepper motor driver acts as the EtherCAT slave.
- An EtherCAT master is integrated inside the Python GUI using PySOEM.
- Universal Robotics: Actin is used for robot arm control.

Assembly & Manufacturing

The DIII-D National Fusion Facility is operated by General Atomics for the U.S. Department of Energy. It is pioneering the science and innovative technology that will enable the development of nuclear fusion as an energy source for the next generation.

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