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Automated quadrupole magnet positioning for enhanced harmonic coil measurement

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The accurate placement of magnets is essential for accurate magnetic field measurements. The current positioning technique employed for harmonic coil measurement is inefficient due to its labor-intensive and time-consuming nature. Therefore, we use four cameras to monitor the position of the magnet due to its non-contact feature, and an electrically driven Stewart platform is utilized to manipulate the magnet. The experiments indicate that the efficiency of the quadrupole magnet positioning has increased significantly by at least 5 times, and the final positioning accuracy was verified by the laser tracker.

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