Abstract Submitted
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RX130 Robot Calibration MARIO FUGAL, None — In order to create precision magnets for an experiment at Oak Ridge National Laboratory, a new reverse engineering method has been proposed that uses the magnetic scalar potential to solve for the currents necessary to produce the desired field. To make the magnet it is proposed to use a copper coated G10 form, upon which a drill, mounted on a robotic arm, will carve wires. The accuracy required in the manufacturing of the wires exceeds nominal robot capabilities. However, due to the rigidity as well as the precision servo motor and harmonic gear drivers, there are robots capable of meeting this requirement with proper calibration. Improving the accuracy of an RX130 to be within 35 microns (the accuracy necessary of the wires) is the goal of this project. Using feedback from a displacement sensor, or camera and inverse kinematics it is possible to achieve this accuracy.

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None

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