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Rotation Stage for Phantom in the Prototype for Proton Computed Tomography

Proton Computed Tomography (pCT) is an imaging technique used to determine the location of cancer. This equipment simplifies the treatment planning process in proton therapy. The rotation stage is a significant part of our pCT prototype. It can rotate the object 360 degrees for use in the 3D image reconstruction process. The purpose of this work is to design a rotation stage capable of supporting an object, develop an algorithm for controlling the rotation stage, and configure it to operate synchronously with proton beams. For proton computed tomography, only 1 degree of rotation is required to create 360 projection images, which can be combined and converted to 3D images. It can be improved and used to find the position of the cancer inside the patient.

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