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## Designing and Construction a Prototype GEM Detector for 2D Proton Dosimetry Applications

The main objective of this project is to develop a medical imaging system to be used in the two dimensions Proton dosimetry applications using the gas electron multiplier technology. These include designing and construction of the detector, readout board, and related electronics. The first step toward attaining the goal of this project is to build a prototype of triple-GEM detector (10cm x10cm) that can achieve the goals of the project. This paper presents the designing, construction and testing of the prototype detector includes the discussions of outlined tasks and achievements as well as the preliminary results from X-ray and some gamma sources. The future plan of the whole project and more details about the next stages will be presented in this paper as well.

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