**Gantry system for urban crop production.**


## Abstract

Farming communities across the country have been hollowed out as rural youth move away to look for better paying factory jobs in the towns and cities. Agriculture sector should be restructured to create conditions conducive for mechanization and make agriculture an attractive lifetime career for young people trained in mechanized crop production. Agricultural activities thus must be introduced to urban dwellers through the introduction of gantry system for crop production. A gantry is a traveling device that is mainly composed of three axis connected by a girder frame at both ends, which perform several task from initial tillage to final harvest without compacting the soil. The project includes the design and the fabrication of the X-axis, Y-axis and Z-axis manipulator arms of the gantry. The analysis was to determine the movement characteristics in each axis so that the accuracy of the movement of the axis in the gantry system can be known. To move the gantry system, two methods were employed that is manual operation and automatic operation. In automatic method, computer was used using graphical user interface (GUI). The axes of the gantry system were controlled via Programmable Logic Controller (PLC). With the used of PLC, the gantry robot can do multiple of farm operations.



**Keyword:** Gantry; Greenhouse; PLC; GUI; Mechanization.