**Project Name:** The Farmer in the Miniature Dell

**Team ID:** MULT61

**Schools:** Eldorado High School, Nex Gen Academy

**Area of Science:** Botanical Science

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**Mentors:** Patty Myers, Neil Haagenson

**Question:** Is there a set algorithm for optimizing agricultural areas in both large and small scale, in which farmers can input set variables which will incorporate biotic and abiotic factors and receive a model for the best layout of crops, crop rotation, and orientation? This concept is stated as a micro farm, or a farm that optimizes vertical space to its maximum potential in urban or suburban areas.The team will make this model-creating program accessible and understandable so that it can truly be applied to any farm.

**Results:** In completing this goal, the team will analyze the dimensions and crop statistics of a local urban Albuquerque community garden and remodel it through a computer model into the optimal orientation and crop rotation based on climate. We will create a data table for the optimal values, and use this to create an algorithm. The team will communicate with farmers and users of the community garden to pinpoint the problem and find a solution.

**Plan:** This project is extremely relevant to our city and the economy as a whole because an algorithm such as this could revolutionize agriculture, farmer to consumer relations, and produce costs. After completing this project, the team will bring it further by submitting it to local authority to continue the flow of information.

**Citations:**

* STATESIDE STAFF. “Michigan Farm Radio Network.” *Grand Rapids micro-Farm turns shipping container into year-Round crop bonanza*, 25 Sept. 2017.
* Dervaes, Anais. “URBAN MICRO FARMING.” *The Urban Homestead*, Jules Dervaes, 24 Apr. 2008, urbanhomestead.org/urban-micro-farming/. Accessed 27 Sept. 2017.
* Adesina, A. “Farm size, relative efficiency and agrarian policy in Côte d’Ivoire: profit function analysis of rice farms.” *Agricultural Economics*, vol. 14, no. 2, 1996, pp. 93–102., doi:10.1016/0169-5150(96)01181-4. Accessed 27 Sept. 2017.