TEXAS STATE UNIVERSITY

The rising STAR *of Texas*

M1.03 - Bluewater Software

Lance Simons, Luciano Davis, Richard Dang

Mr. Summers/Dr. Asiabanpour

BlueWater

Introduction

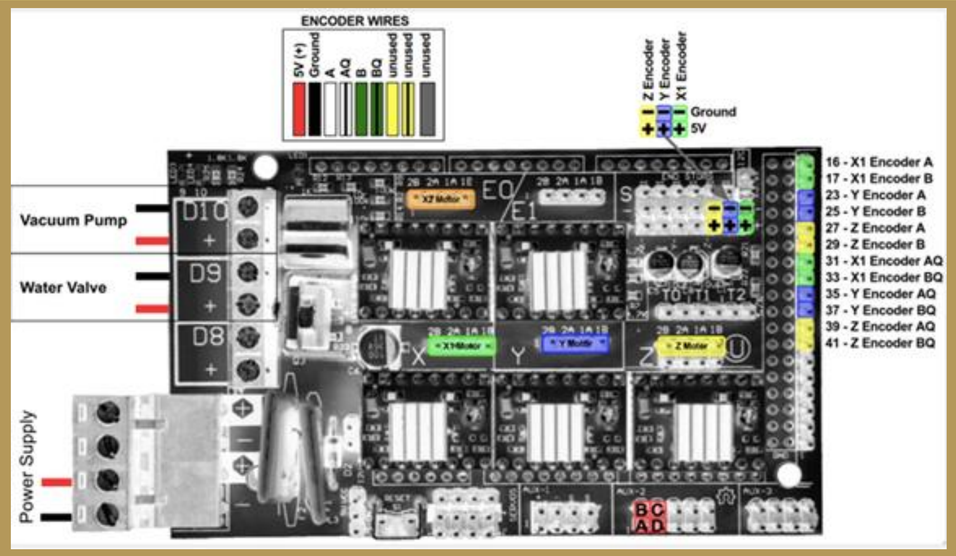
The Bluewater project includes the configuration, coding, designing, and monitoring of the FarmBot system. This system is viewed as an efficient farmhand and the scope of the product requires analyzed/tested travel routes as well as operation testing to meet the project's business needs. The BlueWater product scope consists of the following characteristics:

- Optimized planting of various seed types.
- Efficient travel routes.
- Autonomous operating system.

Problems

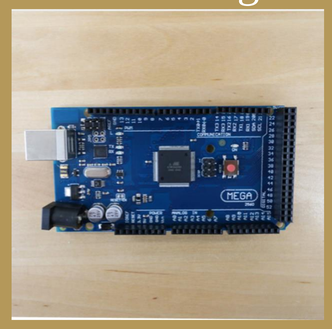
- The previous team had assembled the FarmBot and made a few end effectors, however when we started this project, the FarmBot was inoperable and in need of an operating system restart.
- Wi-Fi Connection issues: As we use the software to control the FarmBot, 45% of the time we lose connection. This is due to having a weak wi-fi connection on the FarmBot.

Components to Controlling FarmBot

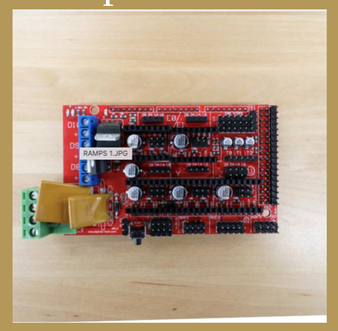


Raspberry Pi 3b

Arduino Mega 2560

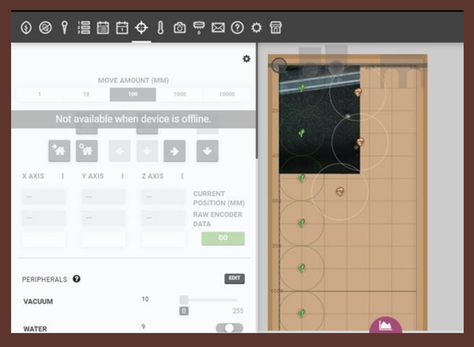


Ramp Shield v1.4



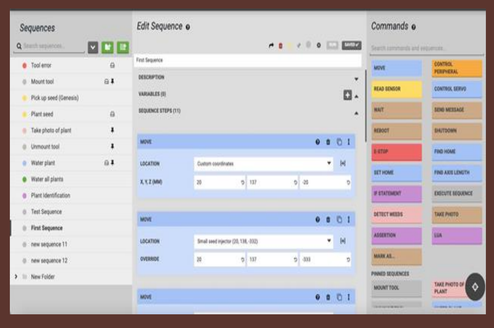
Moving FarmBot

- The Farmbot is compatible with a web application. (i.e., on your mobile, desktop, laptop, etc.)



Creating Sequences

- We program sequences of movement for the FarmBot using the encoder cables along with the data we collected.



Fall Tasks

Programing The Camera

- Using the Plant.ID database, we can photograph our plants and let the software determine if any diseases are present and if our plants are being over/under watered.

Vaccuum Operation

- In charge of picking up various types of seeds and placing them in the appropriate spot.
- Possibly used for mechanically pushing the seed dispenser.

Outcome From Sequences

- The main goals to achieve are efficient travel for seed planting, implementing a vision system to diagnose issues with plants and an automated rotary seed planting nozzle that will be capable of planting seeds of various sizes with the use of sequences we've created.