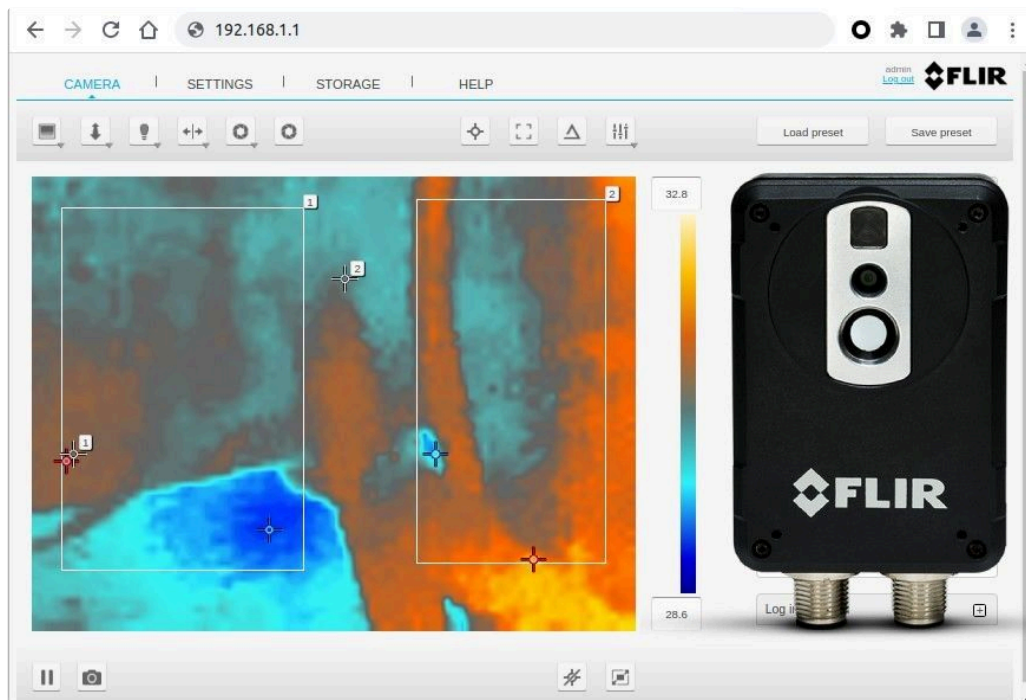


Technical details

This page provides a detailed overview of the technical details amassed by the previous team during the development process, covering a wide range from hardware setup to software deployment. This information not only records the technical implementations of the project to date, including the configuration of the thermal camera, setup of the Farmbot machine and operating system, and the deployment process of the web application but also highlights the key challenges and solutions encountered along the way. By delving into the work of the previous team, our group can gain insights into the technical approaches that may be needed, as well as the technical challenges that may arise as the project progresses. This document aims to offer a solid foundation for our project, enabling us to further refine the process in the upcoming Sprint 2 and Sprint 3, based on the achievements thus far, to enhance the development environment and deployment readiness of the project.

Thermal Camera Setup:

- Comprehensive documentation for the thermal camera was established, including device diagrams, product specifications, and manuals. This documentation will facilitate the camera's setup in Sprint 2.
- The previous team emphasized the importance of a proper power connection, noting that while the Farmduino could easily power the thermal camera, the Raspberry Pi board would be at risk if subjected to higher voltage connections. A custom cable was crafted for safe connection, and considerations for cable extension and connectivity were detailed.
- For data connection, an AX88179 chipset-based adapter was chosen to facilitate the connection between the ethernet port and USB port on the Raspberry Pi. This choice is planned to be adopted in the forthcoming sprint, barring any discovered issues.
- The advancement in mount design through 3D printing technology provided a stable support for the camera, surpassing previous solutions and proving its effectiveness through initial tests. Adjustments to the CAD files will be made as needed for enhanced mount stability.



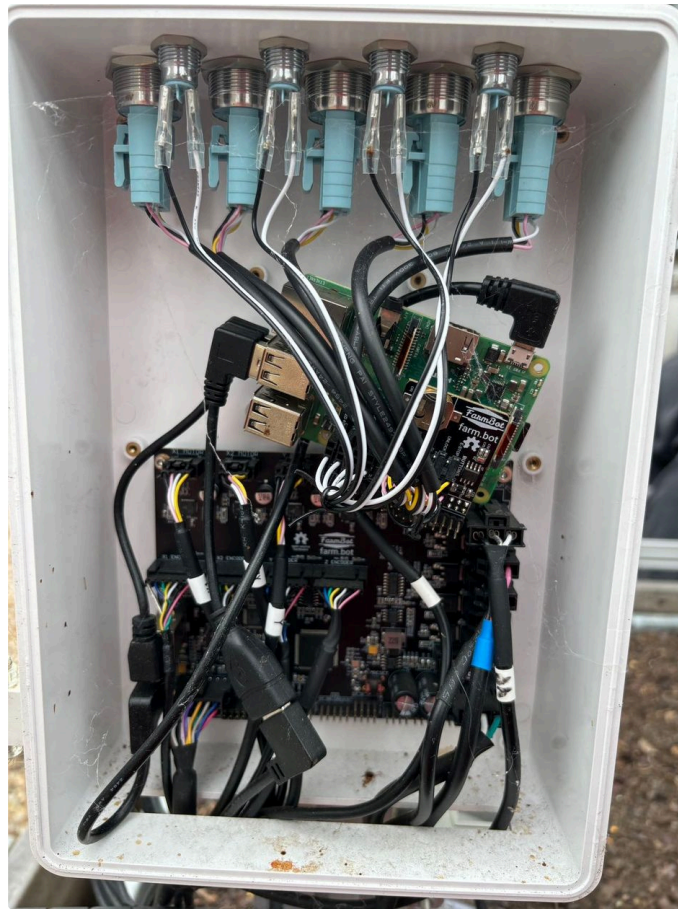
Thermal Camera Flir Ax8

Farmbot Machine & OS:

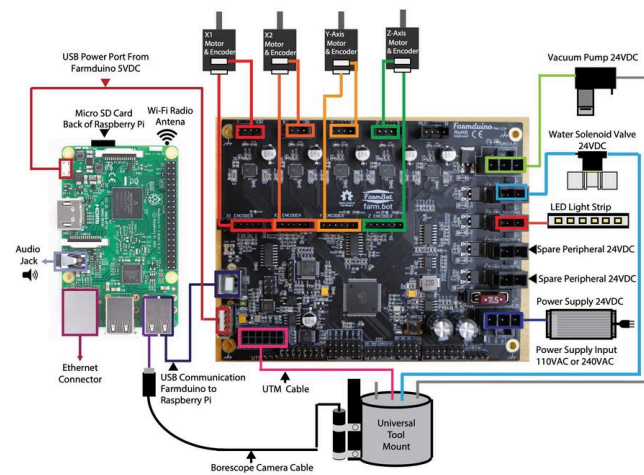
- An overview of the Farmbot software system workflow was provided, with the decision to use a second Raspberry Pi for the thermal camera connection. This setup will be the starting point for our project's design.
- Challenges in data interchange and the complexity of setting up a development environment for FarmBot OS were noted, including issues with SSL and HDMI support, protocol support, and system build requirements. Despite these challenges, a minimal example build script for Raspberry Pi 3 is available for our integration efforts.
- Suggestions for overcoming environment setup hurdles, such as bypassing certain tools and manual dependency installation, were provided, indicating potential paths to streamline the development process.



farmboy



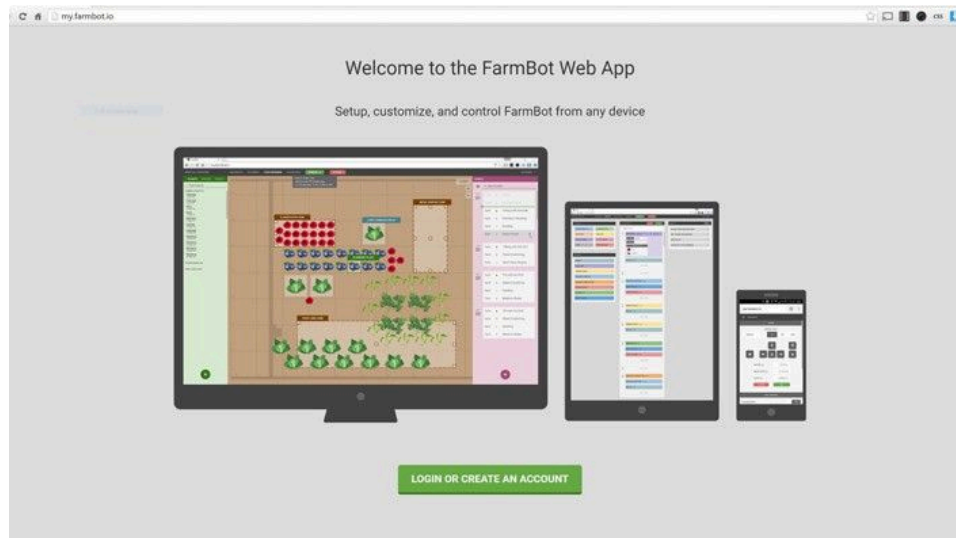
Farmbot Motherboard



Farmbot Motherboard

Webapp Deployment:

- The previous team's attempt to self-host a webapp and deploy it on AWS Lightsail was documented, including detailed instructions for Docker setup, Farmbot Web App installation, and Lightsail instance creation.
- Efforts to develop a custom tab for the thermal camera within the FarmBot Web-app Frontend were detailed, addressing modern React practices, UI design, and various deployment challenges encountered, such as Ruby version issues, database deployment, and server resource constraints.



Conclusion:

- While the majority of the readily deployable environments are in the hardware domain, including the mount design, ethernet adapter, and power solution, software components, particularly the webapp deployment, faced challenges due to compatibility issues and the complexity of Farmbot OS. Nonetheless, the experiences in debugging and the implementation plan laid out by the previous team serve as valuable references. Our team intends to refine the process further in Sprint 2 and Sprint 3, building on the foundation established to enhance the project's development environment and deployment readiness.