

Acceptance Criteria

Hardware Acceptance Criteria

No.	User story	Justification	Estimated Story Points	Task Rating
1	US-D1: Display thermal imaging in real-time	<div>1. Real-time Display: The system must display the FLIR camera's thermal imaging in real-time on the Raspberry Pi operating system.</div> <div>2. Display Quality: Thermal imaging must maintain high clarity and refresh rate to enable effective monitoring.</div> <div>3. Remote Monitoring Capability: The system should have the capability to stream the thermal imaging to the web application for remote monitoring.</div>	3	High
2	US-D2: Understand FLIR camera's data interface	<div>1. Interface Identification: The system must identify and document the data interface type (Ethernet or USB) of the FLIR camera.</div> <div>2. Compatibility Assessment: A compatibility check with FarmBot's mainboard for the identified interface type must be conducted and documented.</div> <div>3. Communication Strategy Development: Develop a detailed communication strategy that ensures seamless data exchange between the FLIR camera and FarmBot's mainboard.</div>	2	High
3	US-D3: Know sensor's dimensions and mounting details	<div>1. Sensor Specifications: Document the sensor's dimensions and mounting details.</div> <div>2. Design Solution: Create a design for a stable and easily installable mounting solution for the sensor that fits within FarmBot's operational environment.</div> <div>3. Installation Guide: Provide a comprehensive installation guide that includes step-by-step instructions and necessary safety precautions.</div>	3	Medium
4	US-D4: Adjust hardware integration for adaptability	<div>1. Hardware Integration Flexibility: Ensure the FLIR camera and its integration components support hardware adjustments for adaptability.</div> <div>2. Plug-and-Play Functionality: The FLIR camera must be easily connectable to FarmBot without the need for additional drivers or complex configuration steps.</div> <div>3. User Experience: Evaluate and ensure that the integration process is user-friendly, minimizing technical barriers.</div>	3	Medium
5	US-D5: Ensure camera's power cable	<div>1. Power Cable Design: Design a power cable for the camera that is flexible and long enough to accommodate the full range of motion of FarmBot's robotic arm.</div> <div>2. Efficiency Assessment: Test the thermal imaging capture process to ensure efficiency and reliability throughout FarmBot's</div>	3	High

	compatibility	range of motion. 3. Safety and Durability: Ensure the power cable's design adheres to safety standards and is durable under operational conditions.		
6	US-D6: Specify new sensor's power specifications	1. Power Specification Documentation: Clearly document the required voltage and current specifications for the new sensor. 2. Compatibility Check: Verify that the sensor's power specifications are compatible with FarmBot's electrical system. 3. Safety Protocols: Implement and document safety protocols to prevent equipment damage due to power incompatibility.	2	Medium

Software Acceptance Criteria

No.	User story	Justification	Estimated Story Points	Task Rating
7	US-D7: Design efficient server architecture	1. Server Architecture Design: Design an efficient server architecture that can handle data requests and responses for thermal imaging data. 2. Performance Metrics: Establish performance metrics for the server architecture, including response times and data handling capacity. 3. Scalability Assessment: Evaluate and ensure that the server architecture is scalable to accommodate future increases in data volume.	3	High
8	US-D8: Design a database for thermal imaging data	1. Database Design: Develop a database schema capable of storing and efficiently retrieving thermal imaging data. 2. Data Security: Implement security measures to protect thermal imaging data from unauthorized access. 3. Data Integrity Checks: Establish routines for regular data integrity checks to ensure the accuracy and consistency of stored thermal imaging data.	4	High
9	US-D9: Integrate thermal imaging in the web application	1. Web Application Integration: Seamlessly integrate thermal imaging functionality into the existing FarmBot web application, including a user-friendly interface for real-time viewing. 2. Feature Testing: Conduct thorough testing to ensure the new thermal imaging page is fully functional and integrates seamlessly with other features of the web application. 3. User Feedback: Implement a mechanism to collect user feedback on the thermal imaging functionality to guide future improvements.	3	High
10	US-D10: Integrate AI for environment	AI Integration: Integrate AI-driven algorithms to analyze environmental parameters and adjust camera settings automatically for optimal imaging.	4	Medium

	al parameter analysis	<p>Environmental Adaptability: The system must demonstrate the ability to adjust imaging settings in response to varying environmental conditions, validated through testing under different scenarios.</p> <p>User Interface for AI Settings: Provide an interface for users to view and, if necessary, override AI-driven camera settings adjustments.</p>		
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Non-Functional Acceptance Criteria

No.	User story	Justification	Estimated Story Points	Task Rating
11	US-U1: Simple and easy-to-use web application interface	<ol style="list-style-type: none"> 1. Simplicity and Usability: The FarmBot web application interface for viewing thermal imaging must be straightforward and easy to use. 2. Real-time Access: Users should be able to view thermal imaging in real-time with minimal latency. 3. Instructional Content: Provide clear instructions or tooltips within the web application to assist users in navigating and understanding the thermal imaging features. 	5	Low
12	US-U2: Automatically recognize patterns and anomalies	<ol style="list-style-type: none"> 1. Pattern Recognition: Implement AI algorithms that can automatically recognize patterns and anomalies in thermal imaging data indicative of changes in crop health. 2. Alert System: Develop a system to alert users in real-time to significant anomalies detected in the thermal imaging data. 3. User Customization: Allow users to customize what constitutes a significant anomaly and the preferred method of receiving alerts. 	5	Low
13	US-U3: View and download historical data	<ol style="list-style-type: none"> 1. Historical Data Access: Users must be able to easily access and view historical thermal imaging data within the web application. 2. Data Export Functionality: Provide functionality for users to download historical thermal imaging data for offline analysis and record-keeping. 	3	Medium