Ethical Considerations

Technological Ethics and Equity

Sprint 1: Foundation Establishment and Initial Deployment

Objective: Ensure the implementation of infrastructure and preliminary services.

Ethical Issue: The use of thermal imaging and artificial intelligence analysis technologies in FarmBot can enhance crop yields. However, if data access is not equitably distributed, it may widen the gap between large farms and smallholders. Moreover, the proliferation of agricultural automation might lead to significant unemployment among traditional farmers as manual tasks are increasingly performed by the FarmBot system.

Equal Data Access: Ensure that all users, whether large farms or smallholders, have fair access to technological resources and data to prevent the monopolization of information.

Customized Services:

1. Small Holders: Offer a basic version of the FarmBot system, which includes automated irrigation and simple thermal imaging monitoring suitable for small-scale crop management.
2. Medium to Large Holders: Provide a standard FarmBot system that includes automated irrigation, thermal imaging monitoring, and basic data analysis services.

Privacy Protection: Future planning for data minimization and anonymization: Implement the principle of data minimization by collecting only the information necessary for the project objectives and anonymizing collected data to ensure it cannot be traced back to individuals. Establish strict data access control measures to ensure that only authorized personnel can access sensitive data, and that the data is used solely for project research.

Sprint 2: Function Expansion and Deeper Collaboration

Objective: Expand system functions and increase the depth of collaboration.

Customized Services: Large Holders: Supply an advanced version of the FarmBot system with sophisticated thermal imaging technology, AI-driven crop health analytics, automated planting schedules, and comprehensive data analysis services.

Stakeholder Collaboration: Establish cooperative mechanisms with farmers, research institutions, and governments to jointly decide on the project's direction and applications, ensuring that the interests of all parties are balanced.

Addressing Unemployment Among Traditional Farmers: Establish a multi-stakeholder platform involving the government, the FarmBot organization, and agricultural enterprises. This platform will provide professional training to traditional farmers to transition into agricultural technology specialists.

Sprint 3: Continuous Optimization

Objective: Optimize current operations and prepare for future development.

Universal Design of Interface and Functions: To ensure that the FarmBot project's user interface meets the needs of all users, including the elderly, those with low technical skills, and the visually impaired, we will design an intuitive, easy-to-understand, and easy-to-operate user interface. Measures will include high-contrast visual layouts, simplified operation steps options.

Future Outlook

Future Development Plans: In the future, to reduce energy consumption, the FarmBot system will utilize the latest low-power thermal imaging and sensor technology. We will optimize the device's energy management system, using smart algorithms to reduce energy use

during non-critical times, such as decreasing the frequency of thermal imaging scans when sunlight is adequate. Implement a recycling and reuse plan for electronic devices to reduce environmental impact.