Transcript for the Slides:

**Feature #1 - GERALD**

Functional

* *Crop Yield Prediction*: Use historical data and machine learning algorithms to predict crop yields. Factor in weather, soil type
* *Task Scheduling***:** Help farmers plan and schedule planting, harvesting, and other farming tasks.
* *Crop Harvest Planning***:** Assist in planning and scheduling crop harvests, including labor and equipment requirements. Optimize harvest timing for maximum crop quality and quantity.

Non Functional:

*Availability and Offline capability*: Ensure SmartFarms is available 24/7 and has additional features to minimize downtime and catch errors and handle exceptions quickly. Power save mode

**Strategies to Overcome Potential Challenges - GERALD**

Lots of thorough research: carrying out surveys, asking…, and studying resources from various professionals in the agriculture industry

Employing a modular system design

Use updated information, do in-depth testing: Based on data collected…….and do a lot……. To figure out…….

Consult security professionals: This will be done early on to ensure we follow good security practices

**Feature #5 - Kojo**

Emergency Response System - In the case of an emergency situation like natural disasters, disease outbreaks, or breaches in security it would be beneficial to have a system in place to fast track damage control

Farm Analytics and Reporting - The analytics and presentation of the data needed to carry out tasks like resource allocation

Carbon Footprint Analysis - Develop a tool which tracks the carbon footprint of the facility in order to promote a greener process

**Feature #6 - Zain**

Auto Harvesting - Autonomous vehicle technology implemented in farming equipment to automatically harvest a field of crops

Equipment Maintenance - Electronic logs of when each type of relevant service was performed on each machine on the farm

Non-Functional:

-The system should provide fast response times for real-time data and alerts.

Potential Challenges - Kojo

Limited Experience in Agricultural Management: The domain might be new to the team, requiring research and learning about sustainable farming practices and emerging technologies. In order to best serve the customers, research must be conducted thoroughly which could take a considerable amount of time.

Data Accuracy and Integration: Ensuring that data from various sources (sensors, automated equipment) is accurate and effectively integrated into the system. This is a vital stage of development especially when dealing with saving costs in energy.

Security Concerns: Safeguarding user data and ensuring robust security protocols can be challenging in a world where privacy concerns and information breaches are becoming more and more common. Cyber attacks must be guarded against.

Scalability: Designing the system to handle a complex data while maintaining performance could be expensive with less engineers on the team the workload increases as opposed to more engineers with less of a workload which costs more.