**Slide 1: Title**

Asslamualikum,

I am Muaaz Bin Mukhtar. With me is Mohammad Ammar Ali and Muhammad Moiz. We have proposed a system "AgroTech" for our final year project under the supervision of Mam Saira Beg.

**Slide 2: Introduction**

AgroTech is a web-based platform designed to revolutionize the agricultural industry as it is the backbone of our economy. AgroTech will be equipped with the latest technologies such as ML, AI, Image generation. AgroTech aims to provide assistance to users throughout the lifecycle of a crop. That is from recommending a crop to monitoring it. Then from harvesting it to selling it. It also provides data driven insights to users to help make informed decisions ultimately improving crop quality and quantity. The purpose of this system is to address the inefficiencies that exist in traditional farming practices and empower users with the technology needed to thrive nowadays.

**Slide 3: Problem statement**

These are the problems faced by traditional farming practices.

* The first of them is resource wastage and low yield. Poor resource management causes wastage leading to lower crop quantity. Which in result increases expenditure and lowers the profit.
* Next is labor intensive traditional methods. Most farmers still rely on old practices, which require manual processes and more man power. This leads to an increase in effort resulting in inefficiency in daily tasks and hence quality.
* Another major issue is poor decision making. Farmers often don't have access to information they need to make data-driven decisions about their crops and farming practices. Which results in limited productivity.
* There's also poor disease detection. Diseases and pests are often detected too late, due to manual surveillance. Which results in decreased yields and higher mitigation costs.
* Another issue is the marketplace. Farmers face limited market access due to middlemen, making it difficult to sell products while customers struggle to find consistent and affordable prices.

**Slide 4: Problem Solution**

To address these issues, AgroTech provides the following solutions.

* Firstly, it will provide optimized resource management and data-driven recommendations to maximize resource optimization. Which results in higher yields and hence higher profits.
* Secondly, it will recommend the best practices maximizing the automation in farming processes. Which leads to improved efficiency resulting in quality crops
* AgroTech will use predictive analysis, providing real-time data and insights that will guide farmers in making smart and effective decisions.
* We prioritize early disease detection, AgroTech will provide periodic monitoring allowing farmers to detect diseases and pests in early stages.
* Finally, AgroTech will provide access to a marketplace, connecting farmers directly to the market and customers. Farmers will be able to sell their products easily. At the same time, customers can benefit by finding affordable and locally sourced options.

**Slide 5: Modules**

Following are the modules for AgroTech.

* Soil Analysis: It will analyze soil based on the result of soil testing. That is nutrient testing, acidity testing, salinity testing. It can also use previous soil records for better analysis.
* Climate Analysis: It will assess the current seasonal weather, temperature and humidity of the area. It can also get online weather reports by fetching location.
* Crop Recommendation: Based on soil and climate analysis, AgroTech will provide crop recommendations suitable for the conditions. It will give pros and cons for all the options and farmers can select any of them according to his suitability.
* AgroTech will be equipped with an AI based chatbot, which will provide knowledge and help solve farmer queries and problems.
* AgroTech will schedule periodic monitoring of crops. It will detect diseases and pests early on ensuring the best health of crops. It will provide assistance on usage of pesticides and medicines.
* It will also provide yield estimation based on the health of crops and environment. That is soil and climate analysis. It will assist in optimizing resources and plans.
* ‌Using image recognition, AgroTech tells the maturity of crops and when will be the crops ready to harvest.
* ‌It will also design optimized schedules for harvesting. And recommend tools and techniques for harvesting. It will also allow farmers to rent or buy tools through the platform.
* ‌The system will also be integrated with transportation assist. Which will provide recommendations, pickup, packaging and drop-off facilities in minimum expenditure.
* ‌The system will also be integrated with storage assist. Which will recommend storage types, temperatures and locations. Users can also book suitable storage places through the system. It will also help users in quality grading of crops.
* ‌The system will provide access to a marketplace where the farmer can list his product with all the necessary information. If a farmer needs to sell in bulk, he will also be able to perform bidding. Customers will be able to view, review and buy products.
* ‌The system will generate reports for comparative analysis, system performance, sales and revenues etc.

**Slide 6: Actors**

Our system is for 4 types of users.

* ‌Admin holds the highest level of authority. He can view, edit, add, and delete anything at any time. He can view reports and manage user complaints.
* ‌Farmers can perform soil and climate analysis, get crop recommendations and monitoring. They can access the transport and storage assist and can also grade their products using the system.
* ‌Sellers can list their products with required details. It can be a farmer selling crops or any other person selling/renting tools or pesticides etc. Sellers can view reports to analyze their sales and can also feature any product.
* ‌Customers can view, review and buy the listed products.