DEPARTMENT OF ELECTRICAL AND COMPUTER ENGINEERING

PROJECT PROPOSAL

Agriculture Management System (AMS)

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Introduction
Bangladesh is an agriculture-dependent country, and both crop cultivation and livestock management play a critical role in its economy. However, farmers often face challenges in tracking crop growth stages, soil conditions, and livestock health efficiently. This project is a unified solution to Crop and Livestock Management hence the name Agricultural Management System. This project hopes to assist farmers in tracking crucial agricultural data, managing livestock health, and optimizing resources.

Objective
• Provide farmers with a unified platform for tracking both crop and livestock data.
• Help farmers monitor crop growth stages, soil health, and weather conditions.
• Enable real-time tracking of livestock health, feed schedules.
• Deliver timely alerts and notifications for critical actions like crop harvesting, livestock vaccinations, and veterinary care.
• Website in a wide range of language support so a farmer in his/her proficient language can use it.

Target Customers
◦ Individual farmers can use the system to manage and monitor both their crops and livestock.
◦ Access data such as growth stages, soil conditions, weather forecasts, health records of animals, and yield predictions.
◦ Large-scale operations can track farm performance, crop yields, and livestock health across multiple farms, optimizing resource use and boosting productivity.
◦ Give the educated young people motivation to do agriculture related work.

Value Proposition
The AMS will simplify farm management by providing farmers with real-time insights into both crop and livestock activities. It will help increase productivity by allowing farmers to track key indicators such as crop growth, soil health, livestock feeding schedules, and veterinary care. This will lead to better resource utilization and yield optimization reducing the costs by optimizing pesticide, fertilizer, and feed use.

Web Application Features and Description
The **Crop and Livestock Management Dashboard** will allow farmers to monitor critical agricultural data. They will be able to track crop-related information such as planting dates, growth stages, soil conditions, and weather forecasts. For livestock, farmers can log animal profiles, manage feeding schedules. The system will also offer tools for resource management like pesticide, fertilizer, and feed inventory tracking.

Farmers will also benefit from analytics and reports, helping them predict yields, monitor harvests, and evaluate livestock performance.

Real-time Alerts will provide notifications to farmers via email/texts. Alerts will cover essential updates, such as weather changes, livestock vaccination schedules, crop harvesting and resource management tasks.

Tools and Resources

- HTML5, CSS3: For designing the user interface.
- JavaScript: For interactive features and real-time data visualization.
- PHP/C# with .Net core: For server-side scripting and database integration.
- MySQL: For database management, storing information related to crops, livestock, and farm activities.
- Weather API: To provide real-time weather data and forecasts.
- Web Server: For hosting the application and managing client-server communication.

Challenges

1. Data Volume: Managing large amounts of data, such as real-time weather forecasts, crop and livestock records, and images, could lead to higher operational costs.

2. Data Verification: Ensuring the accuracy and reliability of data, especially with crop growth, soil conditions, and livestock health, will be a challenge. Integration with national databases like the NID system will require careful processing and approvals.

3. Knowledge: we'll be implementing a framework which is widely known but we are new to. We'll face challenges as we'll be learning and implementing at the same time.

Conclusion

The Agricultural Management System (AMS) will provide a comprehensive solution for farmers and new to farming to manage both crop cultivation and livestock health on a single platform. With real-time data and personalized notifications, the system will enable farmers to make better decisions, improve their productivity, and reduce costs. This unified approach will benefit not only individual farmers but also those overseeing large-scale agricultural operations.