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CASE STUDY:

Enhancing Crop Health through Digital Diagnostics for Fertilizers Department (Uttar Pradesh)

Overview:

Agriculture is a cornerstone of rural economies, but it is often challenged by pests and diseases that can drastically reduce crop yields. Traditionally, farmers have relied on personal experience or local agricultural advisors to diagnose and treat these issues.

With advancements in digital technology, there is a new opportunity to improve crop health diagnostics and intervention through the use of mobile communication. The program was designed to enable farmers to send images of insects, crop diseases, and other agricultural issues to APD experts via WhatsApp, SMS, or email. In return, the farmers would receive detailed feedback and actionable recommendations promptly.

Challenges:

Challenges for the execution of successful Enhancing Crop Health through Digital Diagnostics:

- **Connectivity Issues**: Some farmers in remote areas faced difficulties in sending images due to poor mobile network coverage.
- **Image Quality**: The effectiveness of the diagnosis heavily depended on the quality of images sent by farmers.
- **Scalability**: Initial requires additional resources and a larger team of experts.
- Sharing information to Experts & feedbacks to Farmers.
- Regular trainings & awareness programs for farmers to use the new system

Technologies:

MS.NET, ASP.NET, MS-SQL Server, Angular JS, API's etc.

Benefits Achieved:

- **Automated Tracking**: Reduces manual effort and administrative tasks.
- **Setting Up the Communication Channel:** By setting up dedicated contact numbers & email id to receive images.
- **Real-Time Data**: Immediate access to details submitted by Farmers.
- **Error Reduction**: Minimizes human interventions reduces errors.
- **Trainings & Awareness Programs:** These provide more awareness to farmers in terms of technology & usage.
- **Detailed Reports**: Provides detailed and transparent reports for review and feedback.
- **Online System:** Reduced time & efforts due to online system.

Requirements of the project:

- **Registration and Training of Farmers:** Proper registration of farmers & trainings.
- **Submission of Images & Details:** Whenever a farmer encountered an issue in their crops, they would take a photo using their mobile phone and send it to Department via WhatsApp, SMS or email.
- **Expert Analysis**: Upon receiving the images, experts analyze the photos to diagnose the problem.
- **Feedback and Recommendations**: Within 24 to 48 hours, the department experts respond with a detailed diagnosis and specific recommendations for treatment.

Approach:

Approach for the execution of successful Enhancing Crop Health through Digital Diagnostics:

The solution involved developing a web - based application (as advised).

- Understand the requirements and accordingly identify technology.
- Clear UI/UX for Modular Design
- Complete User Friendliness
- Support for Local Languages
- Determine Database Schema
- Comprehensive training sessions
- On-going support maintenance.