Smart India Hackathon

Project Title: App Based Solution for Identifying and Solving Plant Diseases With Expert Solution.

Location: GMRIT Rajam, Visakhapattnam.

Date: 17-12-2023 To 24-12-2023

College/Institute Name: Vidya Pratishthan's Kamalnayan Bajaj Institute of Engineering and Technology. Baramati

Department: Artificial Intelligence and Data Science

Team Members:

1. Rushikesh Sharad Shinde
2. Shreyas Ramesh Kulkarni
3. Gaurav Mahendra Jagtap
4. Yogita Dhananjay Chougule
5. Kalyani Kailas Paliwal
6. Radhika Santosh Vanarase

Guide:

1. Mr. Pradip Ghorapade
2. Dr. Jyoti Rangole

Rounds:

1. **Mentoring Session**
   During the initial mentoring session, our team presented a comprehensive view of our dataset, showcasing its structure, diversity, and relevance to our project objectives. We meticulously explained the rationale behind our project idea, highlighting the significance of leveraging AI and computer vision to address plant diseases. Additionally, we elucidated the potential impact our app-based solution could have on the agricultural sector, emphasizing its role in providing timely and accurate diagnoses while offering expert solutions. This session aimed to provide mentors with a clear understanding of our dataset's quality and the depth of our project concept, setting the stage for valuable guidance and feedback.

2. **Mentoring Session:**
   During the second mentoring session, our team presented a functional prototype of our project, offering a comprehensive demonstration of our application's capabilities. We meticulously explained each aspect of our app's functionality, detailing how AI and computer vision techniques enable the identification and resolution of plant diseases. We actively sought feedback, encouraging mentors to explore the prototype, assess its usability, and provide insights on potential improvements. This session aimed to gather constructive criticism and refine our app further, ensuring its efficacy and user-friendliness in addressing real-world agricultural challenges.

3. **Evaluation Round:**
   During the evaluation round, our team meticulously curated the entire dataset, meticulously organizing and preparing it for the model training phase. We initiated the training process, leveraging the dataset to enhance our AI model's accuracy in identifying plant diseases. Throughout this phase, we actively solicited feedback from

stakeholders and experts, promptly incorporating suggested changes and improvements. This phase was crucial in ensuring the robustness of our model and aligning it with the requirements and expectations gathered from valuable feedback.

4. Evaluation Round:

During the evaluation round, after rigorous testing and assessment, our team observed that the YOLO algorithm did not meet our anticipated performance standards. To optimize our project's efficacy, we swiftly pivoted and transitioned to the MobileNet algorithm. This decision was rooted in our commitment to delivering a high-performing solution for identifying and resolving plant diseases, ensuring that our approach aligned better with our project goals and expectations.

5. Evaluation Round:

During this evaluation round, our team implemented essential modifications to the application based on received feedback, prioritizing enhancements to improve functionality and user experience. We initiated a comprehensive redesign of the application's user interface (UI) to ensure a more intuitive and visually appealing interface for users. Additionally, to validate the model's performance, we systematically sourced random images from Google and rigorously tested them using our model. This process aimed to verify the accuracy and robustness of our solution across diverse datasets, ensuring its reliability in real-world scenarios.

| Name	Roles and Responsibilities handled
Gaurav Jagtap (Leader)	Team and Project management, Labeling (Sugarcane), Data and Requirement analysis,Planning,Resources Procurement.
Rushikesh Shinde	Backend development, AI model building, Verification and Validation of SRS.
Shreyas Kulkarni	Frontend(GUI)Development, Expert view module design, Interoperability Check
Yogita Chougule	Login module design, Labeling (Grapes),Field Validation
Radhika Vanarase	Presentation, Documentation, Testing data development, Navigation system
Kalyani Paliwal	UI/UX design, Color theme selection, Layout design.

Outcomes:

Despite initial challenges with the YOLO algorithm, the team's agility and problem-solving prowess led to a seamless transition to MobileNet, significantly enhancing the application's accuracy in identifying plant diseases. Through meticulous dataset preparation, model training, and iterative improvements based on feedback, they ensured the app's robustness. The redesigned user interface aimed at enhancing user experience, and rigorous testing with diverse image sets validated the application's efficacy. Their project represents a promising step toward leveraging technology for addressing agricultural issues, setting a precedent for future advancements in this crucial domain.

Glimpses of Event

Round 1:

Mentoring Round:
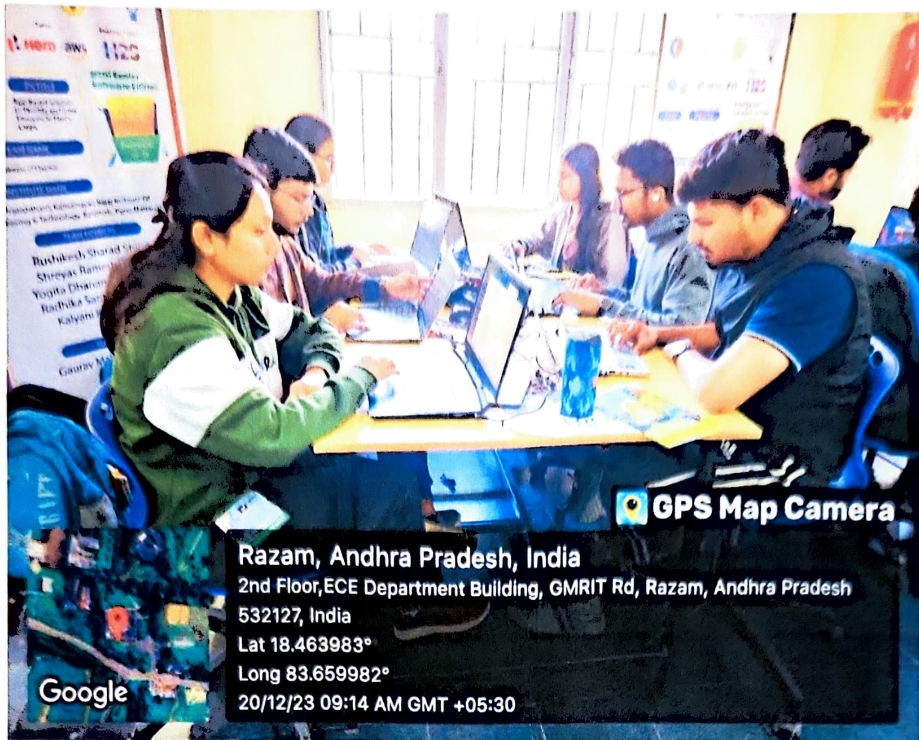
Evaluation Round:

Final Award Distribution:

Guide

Mr. P.P. Ghorapade

HOD

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Principal

Dr. R.S.Bichkar