Project Design Phase-II
Technology Stack (Architecture & Stack)

Date	5 November 2023
Team ID	592104
Project Name	Project - Safeguarding Agriculture: AI-Enabled Prognostication of Farm Insect Threats
Maximum Marks	4 Marks

Technical Architecture:

The Deliverable shall include the architectural diagram as below and the information as per the table1 & table2

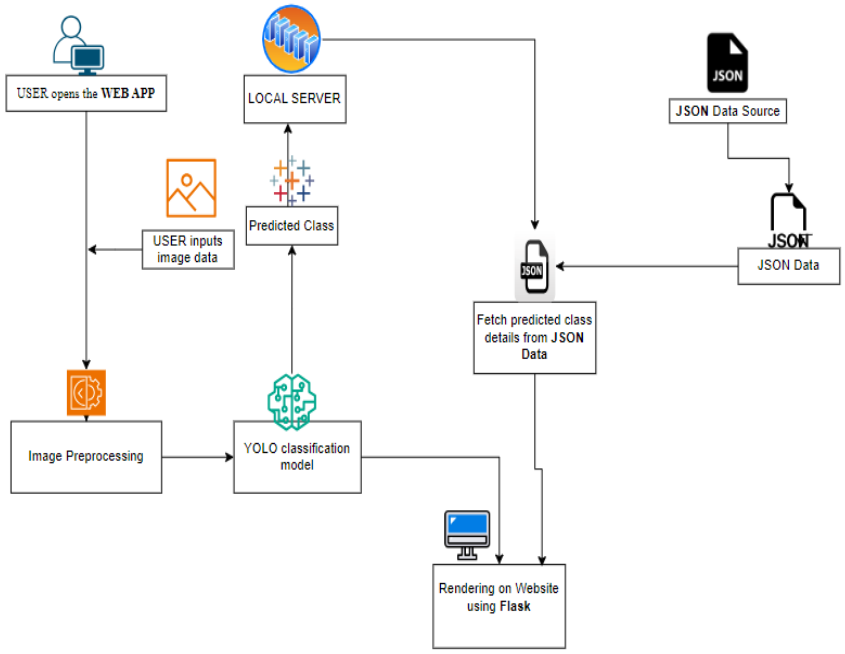

Table-1 : Components & Technologies:

S.No	Component	Description	Technology
1.	User Interface	Web UI	HTML, CSS, JavaScript
2.	Application Logic	Logic for a process in the application	Python
3.	File Storage	File storage requirements	Local Filesystem
4.	Machine Learning Model	Image Classification	YOLOv8
5.	Infrastructure (Server / Cloud)	Application Deployment on Local System / Cloud Local Server Configuration:	Local

Table-2: Application Characteristics:

S.No	Characteristics	Description	Technology
1.	Open-Source Frameworks	Flask provides a simple yet flexible framework for web development in Python. Its lightweight nature makes it easy to get started while its extensibility through extensions and configuration allows scaling up applications.	Flask

2.	Performance	• Inference Speed: YOLOv8's efficient architecture allows for fast inference, ensuring quick processing of images and prompt identification of insect threats. • User Interface Responsiveness: Flask, along with HTML, CSS, and JS, is optimized to create a responsive and intuitive user interface. Farmers can seamlessly interact with the application, accessing predictions and insights with minimal latency. • Scalability: Flask's scalability ensures that the application can handle a growing number of users and data inputs. This is crucial for accommodating the diverse needs of farmers and the dynamic nature of agricultural settings. • Reliability: The project emphasizes reliability in delivering accurate predictions. YOLOv8's high accuracy in object detection contributes to the overall reliability of the system, providing farmers with trustworthy information for decision-making.	Technology used: • HTML provides the structure • CSS styles the presentation • JavaScript adds interactivity to the web interface. • Flask:It serves as the backbone of the web application, providing a robust and scalable framework for building the user interface. • YOLOv8 (Ultralytics): It is developed by Ultralytics, is a state-of-the-art object detection model. • Fetch API/AJAX: The Fetch API and AJAX are utilized for asynchronous communication between the front-end and back-end.