FINAL YEAR PROJECT

Project Proposal Form 2023

Discipline: **Software Engineering**

Session: **Morning / Evening**

Date Received: _____

Project ID (Office Use): _____

Faculty of Engineering and Technology
University of Sindh, Jamshoro

1. Project Identification

A. **Reference Number: _____**

(for office use only)

B. **Project Title: Grow wise: The Crop Predictor**

C. **Project Supervisor:**

Name:	Dr. Mumtaz Qubolio		
Designation:		Signature:	
Email:	Mumtaz.qubolio@usindh.edu.pk	Contact:	03213299349

Project Co-Supervisor:

Name:			
Designation:		Signature:	
Email:		Contact:	

D. **Student Information** **Morning / Evening**

Roll No	Name of Each Member	Contact / Email	Signature
2K20/SWE/74	Mukhtyar Khan	mukhtarkhani382@gmail.com	
2K20/SWE/6	Abdul Kabeer	Abdul.Kabeer245@gmail.com	
2K20/SWE/61	Muhammad Bilal Raza	muhammadbilalraza831@gmail.com	

E. **Project Status:** (Please mark ☑)

☐ New Project ☑ Modification / Extension of previous Project ☐ Research Based Project

F. **Select your Project Category** (Write down the name if not available)

Category Name		Category Name	
Web Development	✓	Robotics	
Android Application		Renewable Energy	
E-Health		Satellite Communication 3G, 4G, 5G	
E-Commerce		Simulation Based	
WIFI/Wireless –Communication		Computer Networks	
Bluetooth Technology		Microwave Optical Fiber	
Desktop Application		Antenna Fabrication	
Game Development		Controller Design	
Graphics Animation		Network Simulation	
Biometric		Nano Technology	

G. **UNDP Sustainable Development Goals**

Select the Goal(s) from list below that defines your project purpose or outcome:

Goal Name		Goal Name	
No Poverty		Reduced Inequality	
Zero Hunger		Sustainable Cities and Communities	
Good Health and Well-being		Responsible Consumption and Production	✓
Quality Education		Climate Action	
Gender Equality		Life Below Water	
Clean Water and Sanitation		Life on Land	
Affordable and Clean Energy		Peace and Justice Strong Institutions	
Decent Work and Economic Growth	✓	Partnerships to achieve the Goal	
Industry, Innovation and Infrastructure			

2. Scope, Introduction, and Background of the Project

Introduction:

Agriculture is an essential part of economies around the world and the backbone of Pakistan's economy. As an agricultural country, Pakistan has faced many issues in its agricultural sector; Especially the farmers face different challenges that impact the yield of their crop and profitability. However, with the help of technology, we can overcome these challenges and improve the quality and production of crops, which will ultimately contribute to the economy. With the help of technological advancement, farmers can make informed decisions about which crop to sow based on soil tests and market demands. The disease prediction will suggest a disease and

propose a treatment. Consequently, by becoming self-sufficient in the crops that we currently import and increasing our exports, we can further enhance our economic growth and stability.

Scope:

This project aims to develop a crop recommendation system. This recommender will suggest the most suitable crop to sow in-demand crops based on a soil. Furthermore, the system will integrate the analysis of cotton leaves to identify diseases caused by pests. By utilizing image recognition-based technology, the system will accurately detect and diagnose pest-related diseases on cotton plants. Once a disease is identified, the system will suggest appropriate treatment options to manage and mitigate the disease.

3. Similar Projects and Literature Review:

(Detailed summary of what already has been done in the proposed area. How your project is different from previous work.)

A lot of work has been done in the agricultural sector. There are lots of websites available related to agriculture, but each has left some gaps. Most websites are just providing agricultural information.

Similar projects:

Bakhabarkissan:

BaKhabar Kissan is a Pakistani AgriTech company that supports farmers in making data-driven decisions. The company takes a comprehensive approach to address both production and market-related issues in the agriculture value chain. They offer a range of services to farmers, including crop and livestock advice, weather forecasts, market rates, and remote sensing-based guidance. Additionally, the platform connects farmers with consumers and businesses to help promote their products. Each farmer has a personalized journey on BKK based on their location, crops, and other factors. BKK is committed to improving the lives of farmers and operates as an e-commerce platform, but only provides limited crop information to promote their products.

aari.punjab.gov.pk

The Ayub Agricultural Research Institute is a key driver of growth in important crops in the region. Its mission is to develop new crop varieties and innovative technologies to enhance food safety, security, and sustainable production of exportable goods. The institute is also dedicated to value addition and conservation of natural resources. While they provide valuable crop information, it is important to note that their focus is limited to certain crops.

agri.sindh.gov.pk

The Agri Department of Sindh aims to promote the use of new crop technologies,

fertilizers, pesticides, and farm machinery, as well as the development of new crop varieties. They also collect important agricultural statistics and provide growers with information on urgent issues such as insect pest outbreaks and weather forecasts. The department is dedicated to evolving new, high-yielding crop varieties that are resistant to insects, pests, and diseases for major and minor crops.

CropPedia: A crop encyclopedia (last year's project)

CropPedia is a web tool that provides agricultural information such as what the requirements are and how to seed and harvest specific crops. Some additional features it offers are crop prediction based on soil potential and crop annotation, which connects farmers with selected specialists (Botanists) who assist farmers in taking care of their crops for maximum production.

4. Problem Identification (*Problem Statement / What is the problem that you are trying to solve***)**

Growing a crop is a difficult task that requires hard work and patience. The first step in the process is to find the best crop for the land according to its current condition. The Grow Wise will help farmers tackle this problem. Sometimes the crop gets diseased, so it is best to cure it at the initial stage. Grow Wise will help farmers identify the disease, and suggest a cure for the predicted disease.

5. Aims and Objectives of Project: (doable Targets, Goals, Steps you will take to achieve your project Aims)

Aims:

The project aims to help farmers make informed decisions by predicting crops to sow on their land and also increase the crop production by identifying crop diseases timely and effectively.

objectives:

- To develop a crop recommendations system that suggests to farmers the most suitable crop sow based on soil testing results and market demand.
- To develop the crop disease predictor for identifying pest causing disease of cotton plant through its leaves and proposing appropriate treatment.
- To provide an interface to assist the farmers in making an informed decision about

their crop selection and disease management.

- To create a minimalistic and user-friendly interface of the web, so anyone can interact with it easily.

7. Project Milestones and Deliverables

S. No	Milestone Description	Date	Deliverable
1.	Requirement Engineering	May	SRS
2.	System and architecture design	June	Architecture Diagram
3.	Data gathering and processing	August	Dataset
4.	Machine learning model training and testing	September	trained machine learning model
5.	Front-end development and integration	October	Web application
6.	Testing and validation	November	Bug free system
7.	Thesis Writing	December	Thesis

6. Expected Tools and Technology requirementss

Technologies:

1. **Python Libraries:**
   Pandas, Numpy, Matplotlib/Seaborn, Scikit-learn, OpenCV
2. **Front-end:**
   HTML, CSS, Javascript, Bootstrap
3. **Back-End Framework:**
   Flask/Django
4. **Development Tools:**
   Git, GitHub, Visual Studio Code, Jupyter Notebook.

7. Methodology, Design/Development Process Model, etc:

(Please describe the technical details and development process. Provide Working Diagrams, System Design, Specify major components / entities of your project using block diagrams, system flow charts etc.)

Incremental model

We will be following incremental methodology for the development of our project. It involves the development of software in small increments or iterations, with each iteration adding new features or functionalities to the system. This model allows for flexibility and adaptability, as changes can be made at each stage of the development process based on feedback.

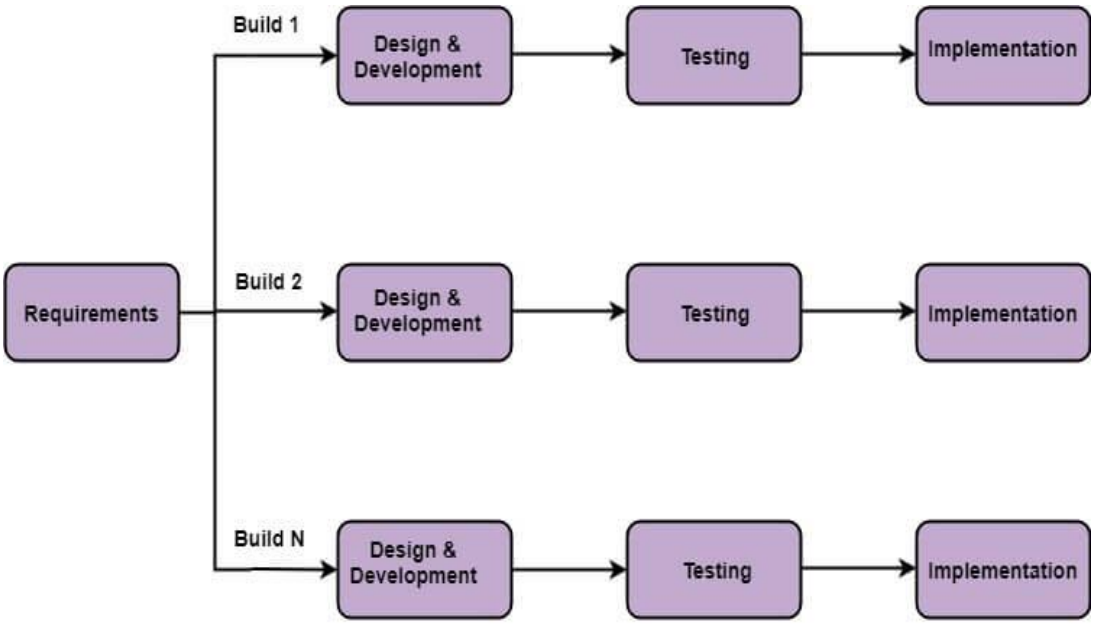
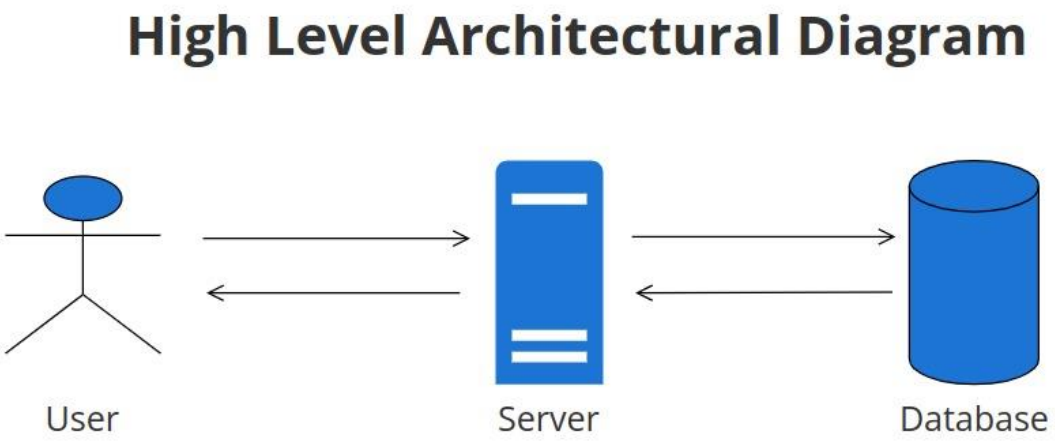


Fig: Incremental Model



References:

https://bakhabarkissan.com/
https://aari.punjab.gov.pk/
https://agri.sindh.gov.pk/

(For office use only)

8. Reviewers Committee Comments

Decision	√ or X	Remarks
Project Accepted		
Project Accepted with Modifications		
Project Needs Major Revision		
Project Rejected		

Other Comments and Suggestions:

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