IOT BASED SMART FARMING SYSTEM

PROJECT CHARTER

By: Team 4 SQAUD

Version : 1.0

ABOUT THE PROJECT CHARTER

PROJECT AUTHORIZATION

Here we focus a Smart farming system. The owner is introducing to the new technology that is not found in the traditional cultivation of sri lanka. we can see an interesting combination of IOT technology and computer technology.

AUDIENCE

- Our main focus is to develop a smart farming system for sri Lankan traditional farmers.

  Our other idea is help to create a prosperous economy through agriculture in Sri Lanka.

1. INTRODUCTION

As our project we are planning to create a smart farming system. As currently we are using manual procedure to check the farming system humidity level, hydroponic level like that. It was wasting time of farmers. In this system we focus get data humidity level, hydroponic level, like that things. After we scan those levels through the database and after we implement them via web application.

So you can see that, this process is much more effective reliable and giving you a accurate real time data.

2. PROJECT OBJECTIVES AND EXPECTED BENEFITS

OBJECTIVES

- Our major goal is to create a computer-based system for managing and visualizing agricultural data. Monitor and view environmental conditions in your green house, for example. This is extremely beneficial to modern farmers. They can make predictions using the visualized details.

- We use that real-time environmental monitoring service to notify our clients when certain environmental conditions are falsified. Not only do we provide consumers the ability to automate farming chores such as irrigation systems.

- Our desktop version provides the most user-friendly user experience for users, while our online application offers greater mobility choices. Clients may access and track all data from anywhere in the world by utilizing that online application.

EXPECTED BENEFITS

- Reduce Waste and Enhance Productivity.
  Growers and farmers may minimize waste and increase output by using smart agricultural technology based on IOT. Smart farming solutions are designed to monitor agricultural fields using sensors (light, humidity, temperature, soil moisture, and a variety of other factors) and to automate irrigation systems.

- Perdition and Visualization Data
  Predictive analytics for smart farming Crop prediction is important because it assists farmers in making decisions about crop production, storage, marketing strategies, and risk management.

- Greenhouse automation
  IoT can do much more than collect environmental data. Weather stations, with the correct software, can regulate the temperature to fit the essential

parameters and provide the ideal circumstances for personalized greenhouses.

- **Management of crops**
  data such as crop health, temperature, precipitation, humidity, and other characteristics. Farmers can rapidly discover any deviations before it's too late and take proper action. Farmers may even use the sensors to determine the optimal time to grow and harvest crops.

MEASURABLE BENEFITS

Metric	Baseline	Target	Expected Improvement
Customer engagement and satisfaction	**7**	**10**	**+100%**
Customer Interaction and Satisfaction	**6**	**9**	**+30%**
Communication between farmers & helpdesk	**6**	**8**	**+100%**
Income	**6**	**10**	**+100%**

3. PROJECT DETAIL

PROBLEM DISCRIPTION

To remain competitive, most companies rely on data, which necessitates a digital transformation. Switching to smart digital farming also implies improved production, resource consumption optimization, precise forecasts, better judgments, less risks, reduced mundane activities, and a higher chance of solving the global challenge of food scarcity. So we want to help with that problem, and our major goal is to create a platform to assist with Digital Agriculture.

Identified Root Causes

- A single person can control the farm alone.
- The efficiency is higher and Reduce waste.
- Most Accurate Predictions and Suggestions.
- Improve mobility of system and centralized all data in database.

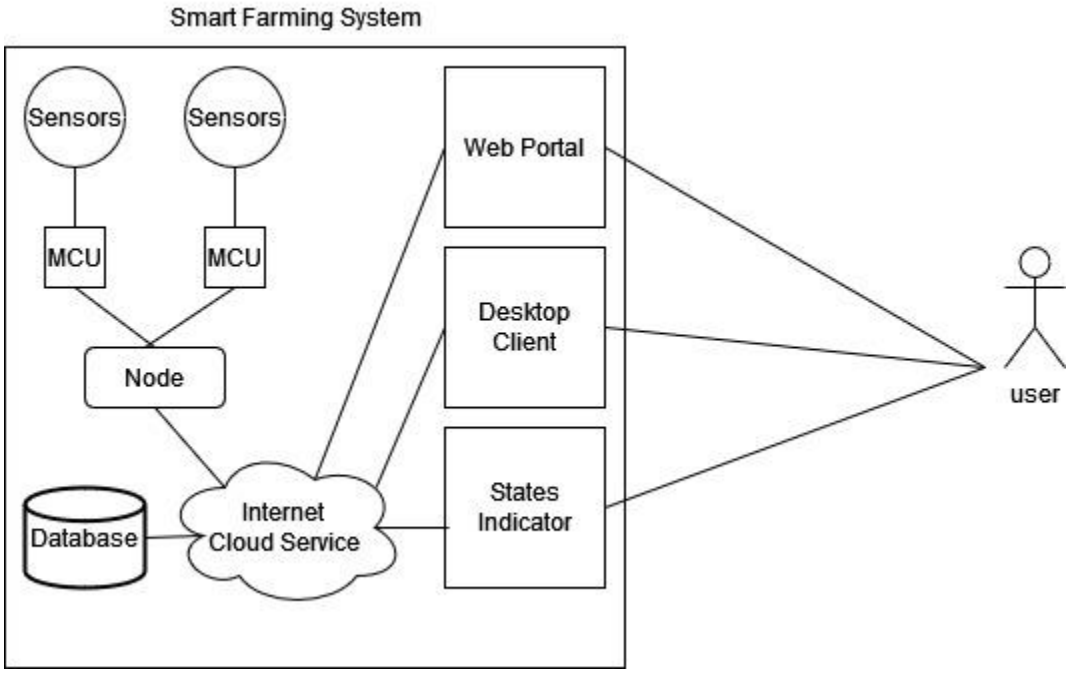
Proposed Solution

Under the concept of smart farming, we hope to provide solutions for the following issues.

- All greenhouse based environmental conditions ae tracked by IOT based system.
- Use Online centralized database for collect data
- Make web site for improve mobility option.
- Desktop application centralized all farming monitoring causes and automation functions.
- A.I bases system can make most accurate predictions and send to it users

SCOPE DETAILS

In Scope	Out of Scope
Desktop Client Software	Onsite training for users
Web Portal	Mobile application
Complete sensors and controllers setup	SMS alerts service



Project Milestones

This refers to the milestones that this project is going to achieve **ONLY** in the 1st version of our project.

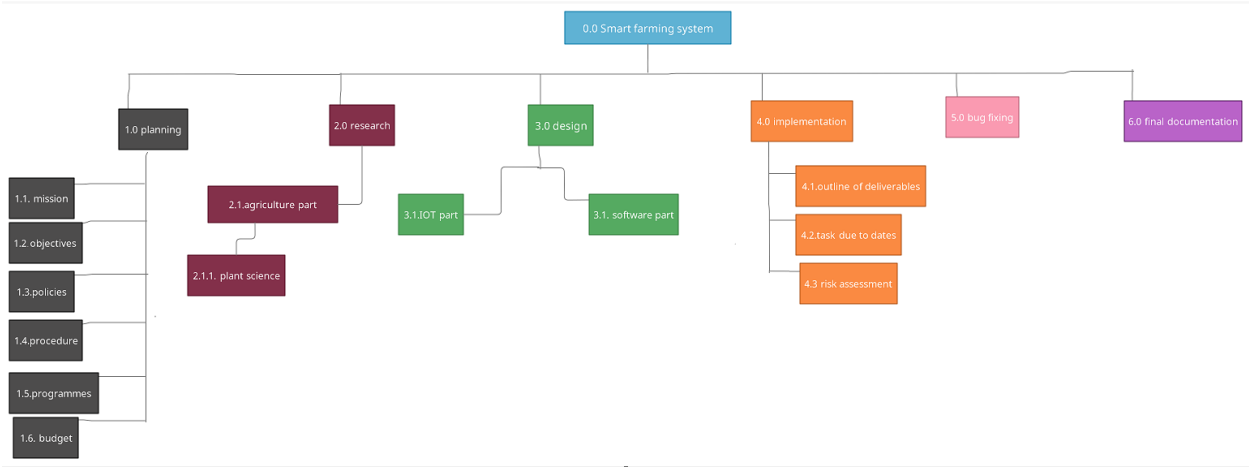
Name	Target Date	Comments
Project Kick Start	25/09/2022	Members gather and officially start project
Project planning and define project scope.	18/10/2022	All members gather information's and combine all selected ideas of group members. That all information's we are found by researching to the topic we choose. According that information's we collect we make project scope.
Project proposal documentation make	23/10/2022	Project proposal documented according to the scope of the project we before define.
UI/UX Design using figma and wire framing web application	29/10/2022	-
Start design IOT part and implementation.	05/11/2022	
Start design web UI and desktop application UI and review them(Front-end)	20/11/2022	
Start back-end implementation.	10/12/2022	

Bug fixing.	10/01/2023	
Final documentation.	17/01/2023	
complete version v.01	18/01/2023	End first 1st version of application.

PROJECT TEAM

Name	Title	Department	Project Role
R.W.D.J Amarasinghe			UI/UX developer of desktop application. Back end developer project manager and team leader
A.P Kannangara			UX/UI developer of web application and back-end developer Do main documentation.
A.Shehan Hettiarachchi			Main IOT platform developer and back-end developer.
S.G.D.I Samarasinghe			Implementation data science part and analyses data and written prediction algorithms.

WBS DIAGRAM


0.0 Smart farming system
1.0 planning
2.0 research
3.0 design
4.0 implementation
5.0 bug fixing
6.0 final documentation
1.1. mission
1.2 objectives
1.3.policies
1.4.procedure
1.5.programmes
1.6. budget
2.1.agriculture part
2.1.1. plant science
3.1.IOT part
3.1. software part
4.1.outline of deliverables
4.2.task due to dates
4.3 risk assessment

4. PROJECT COSTS & RESOURCE ESTIMATES

Resource Estimation

Role or Name	Est. Hours	Rate (Rs.)	Est. Total (Rs.)
Sensors and additional components	-	-	20000
Web hosting			5000
Project Manager	160	1600	256,000
Java developer	190	2000	380,000
Front-end Developer	230	1800	414,000
Backend Developer	120	1800	216,000
		Total:	**1,291,000**

5. RISKS & COMMUNICATION PLAN

RISK MITIGATION PLAN

Identified Risk	Severity	Probability	Mitigation
in the beginning we had a problem to face several issues because we are not experienced in project management.	High	Low	The challengers and technical issues where solved with the help advisor.
Electronics may not function as intended	High	medium	Research about electronic parts before buying them. Run simulations before buying components
Web hosting cost may fluctuate	low	ow	If cost is over the budget, We can use temporal free hosting service for testing and demonstration purposes.

COMMUNICATION PLAN

Topic	Audience	Frequency/Date	Owner
Project stats report	Group members	Weekly	Team leader
Team meetings	Group members	daily	Team leader
Task progress updates	Group members	daily	Team leader
Project progress evaluation	Group members	At milestones	Team leader

6. ADDITIONAL PROJECT DETAILS