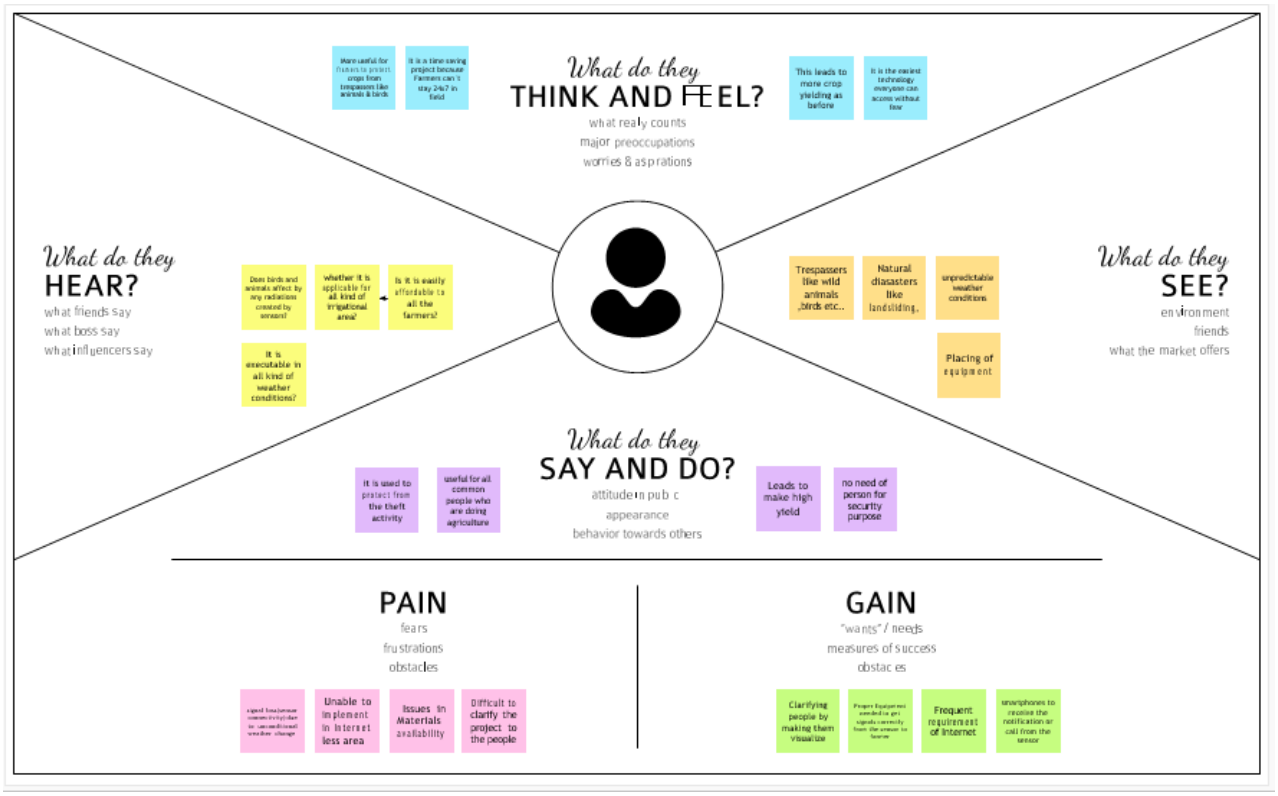
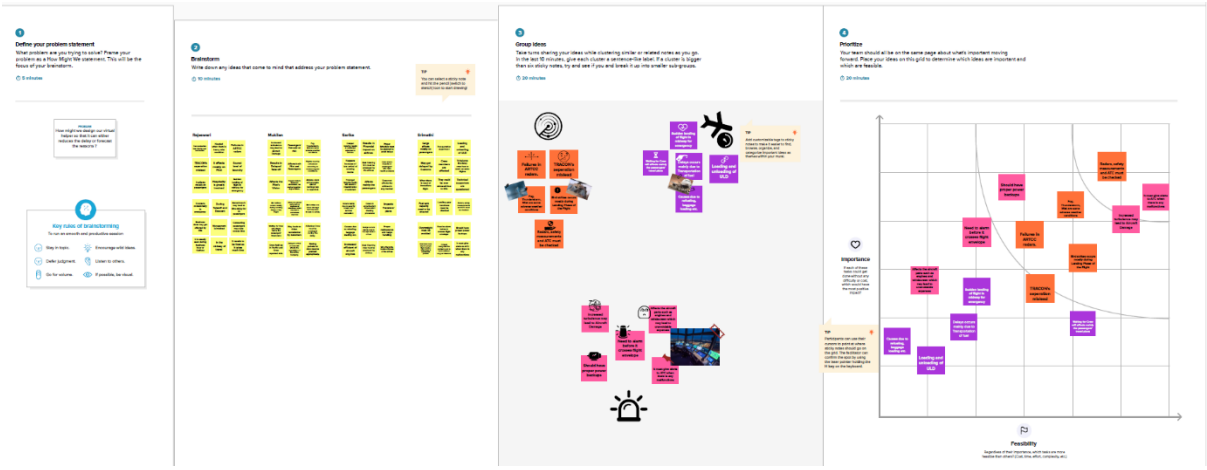
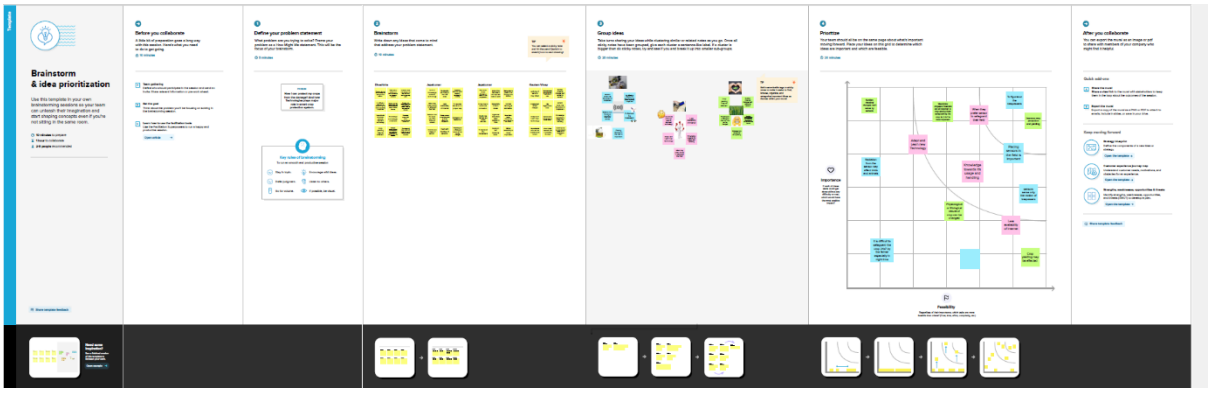
IDEATION AND PROPOSED SOLUTION

EMPATHY MAP CANVAS:



IDEATION AND BRAINSTORMING:

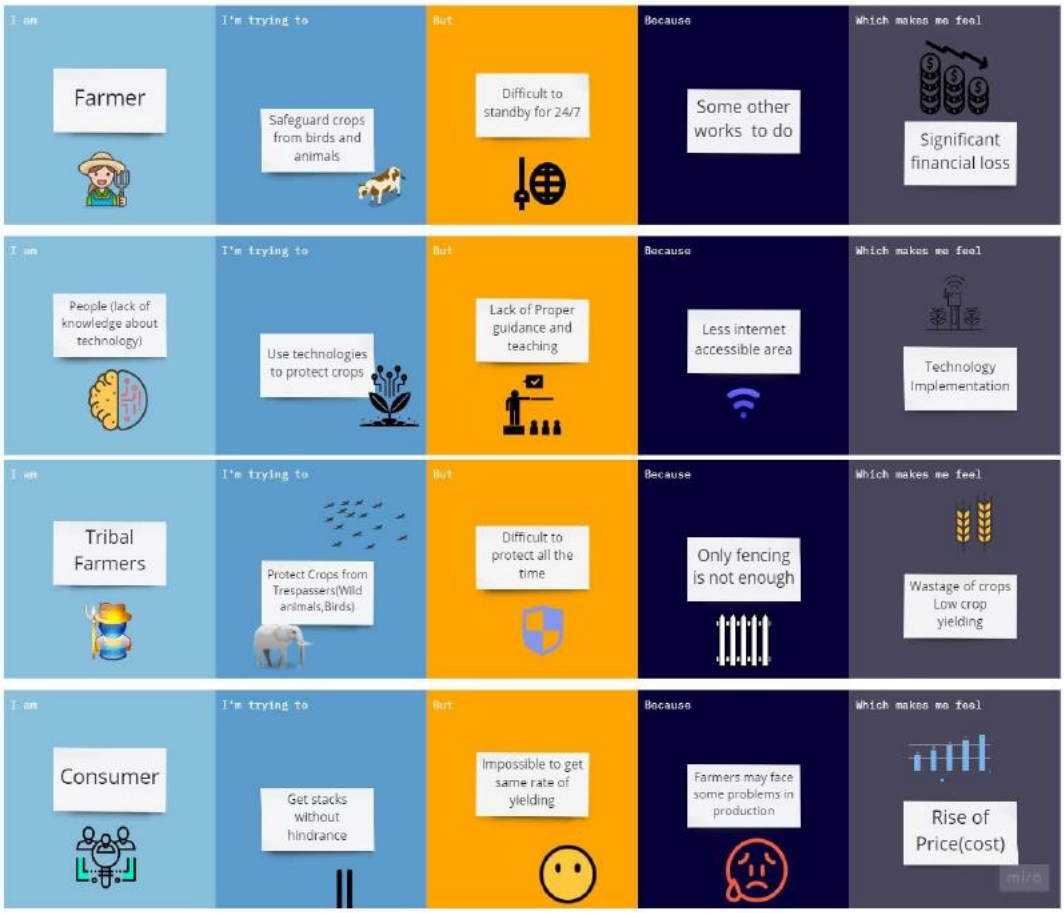




PROPOSED SOLUTION:

S.No.	Parameter	Description
1.	**Problem Statement (Problem to be solved)**	• Farmers can't stay in the field 24x7 in order to safeguard crops form animals (wild animals) and birds. • They don't know when the animals will attack the farm i.e., cause damage to the crop
2.	**Idea / Solution description**	• We are decided to protect crops from animals and birds by using SENSOR (PIR SENSOR), ARDUINO UNO, BUZZERS or ALARM...in the field. • This may help farmers to feel that their crops were safe and protected. This makes them to feel free.
3.	**Novelty / Uniqueness**	• In this project, apart from this sensors and Arduino. We decide to implement fencing with automatic door (opening & closing) by using ultrasonic sensor and servomotor.
4.	**Social Impact / Customer Satisfaction**	• Protecting crops from animals and birds especially in nights may become easier • They can do their other works without any fear about the crops.
5.	**Business Model (Revenue Model)**	• This will be one of the reasons for more crop yielding (i.e., Animals and birds presents may sense through sensors, therefore crops will be protected from damage). • Only Installation process is costlier, apart from that this will help farmers in great way.
6.	**Scalability of the Solution**	• To protect crops from animals and birds especially in night time is difficult. To avoid this discomfort, we will use this technology in our field to protect crops. • This will be FARMER'S FRIENDLY.

PROBLEM SOLUTIONFIT:



REQUIREMENT ANALYSIS

FUNCTIONAL REQUIREMENT:

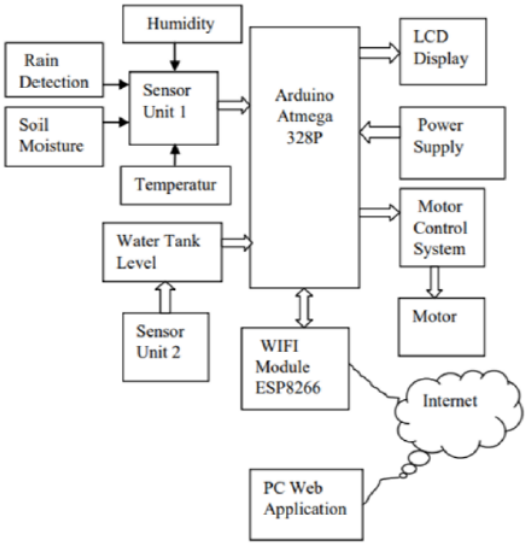
FR No.	Functional Requirement (Epic)	Sub Requirement (Story / Sub-Task)
FR-1	User Registration	➢ Registration through Gmail
FR-2	User Confirmation	➢ Confirmation via Email ➢ Confirmation via OTP
FR-3	Log in	➢ Checking necessary Credentials
FR-4	Checking Weather Details	➢ Temperature Details ➢ Humidity details, Soil Moisture
FR-5	Management of motors and Sprinklers	➢ Farmers can operate motors and sprinklers through mobile application
FR-6	Logout	➢ Exit

NON FUNCTINAL REQUIREMENT:

FR No.	Non-Functional Requirement	Description
NFR-1	**Usability**	➢ Allows farmers to complete their day-to-day challenges
NFR-2	**Security**	➢ Is used to protect the farm from animals as well as unknown person
NFR-3	**Reliability**	➢ The use of smart IOT sensors can maintain these processes, increasing crop production
NFR-4	**Performance**	➢ Sensors helps to get instant warnings of soil salinity and moisture. Air and soil temperature system that allows farmers to schedule watering times and predict the chances of pests and also detect the motion of animals and birds.
NFR-5	**Availability**	➢ Equipment to auto adjust temperature, humidity etc and also to detect animals' and birds' motion
NFR-6	**Scalability**	➢ The biggest challenges faced by IOT in the agricultural sector are lack of information, high adoption costs and security concerns.

PROJECT DESIGN

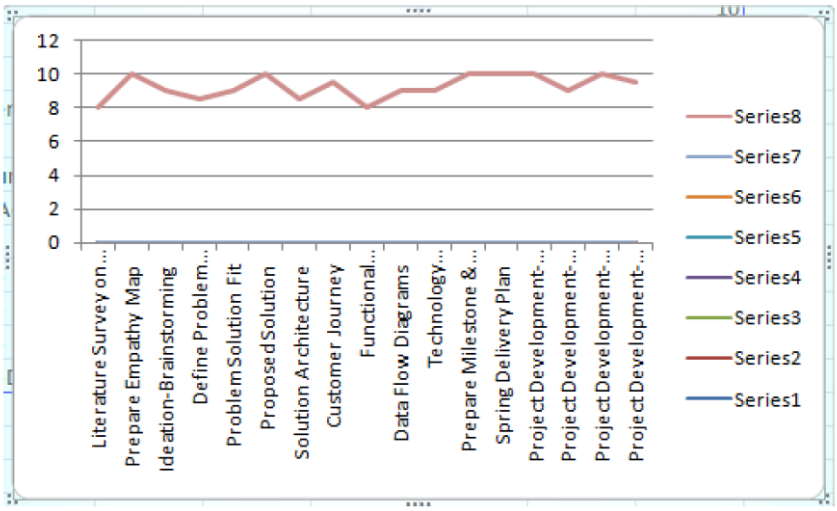
DATA FLOW DIAGRAM:



PROJECT PLANNINGAND SCHEDULING

SPRINT PLANNINGAND ESTIMATION:

Burndown Chart:



Project Tracker, Velocity & Burndown Chart: (4 Marks)

Sprint	Total Story Points	Duration	Sprint Start Date	Sprint End Date (Planned)	Story Points Completed (as on Planned End Date)	Sprint Release Date (Actual)
Sprint-1	20	6 Days	24 Oct 2022	29 Oct 2022	20	29 Oct 2022
Sprint-2	20	6 Days	31 Oct 2022	05 Nov 2022	20	05 Nov 2022
Sprint-3	20	6 Days	07 Nov 2022	12 Nov 2022	20	12 Nov 2022
Sprint-4	20	6 Days	14 Nov 2022	19 Nov 2022	20	19 Nov 2022

Velocity:

$$AV = \frac{sprint\ duration}{velocity} = \frac{20}{10} = 2$$