

GUJARAT TECHNOLOGICAL UNIVERSITY

Chandkheda, Ahmedabad

Affiliated



GOVERNMENT ENGINEERING COLLEGE -RAJKOT

A report on

“Advance Crop Protection System”

PREPARED BY:-

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GROUP ID: 390818

SEMESTER-5th

AS A PART OF CURRICULUM OF ELECTRONICS AND
COMMUNICATION ENGINEERING UNDER THE GUIDANCE
OF

Miss. Pandya Prapti Rajnikant



GOVERNMENT ENGINEERING COLLEGE – RAJKOT

Electronics & Communication Engineering Department

2022-2023

CERTIFICATE

This is to certify that the Project entitled “Advance crop protection System” has been carried out by Dinesh H. Nakum (200200111085) under my guidance in the partial fulfilment of Degree of Bachelor of Engineering in Electronics and Communication Engineering (5th semester) of Gujarat Technological University ,Ahmedabad during academic year 2022-2023.

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GOVERNMENT ENGINEERING COLLEGE – RAJKOT

Electronics & Communication Engineering Department

2022-2023

CERTIFICATE

This is to certify that the Project entitled “Advance crop protection System” has been carried out by Soham M. Ramani (200200111078) under my guidance in the partial fulfilment of Degree of Bachelor of Engineering in Electronics and Communication Engineering (5th semester) of Gujarat Technological University , Ahmedabad during academic year 2022-2023.

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GOVERNMENT ENGINEERING COLLEGE – RAJKOT

Electronics & Communication Engineering Department

2022-2023

CERTIFICATE

This is to certify that the Project entitled “Advance crop protection System” has been carried out by Chirag A. Mayani (200200111069) under my guidance in the partial fulfilment of Degree of Bachelor of Engineering in Electronics and Communication Engineering (5th semester) of Gujarat Technological University , Ahmedabad during academic year 2022-2023.

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GOVERNMENT ENGINEERING COLLEGE – RAJKOT

Electronics & Communication Engineering Department

2022-2023

CERTIFICATE

This is to certify that the Project entitled “Advance crop protection System” has been carried out by Shubham M. Singh (200200111083) under my guidance in the partial fulfilment of Degree of Bachelor of Engineering in Electronics and Communication Engineering (5th semester) of Gujarat Technological University , Ahmedabad during academic year 2022-2023.

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We Thanks **Miss. Pandya Prapti Rajnikant** for giving us full Guidance and Co-operating with us throughout the Project. Without his help this project would not have seen the Light of the Day. We are also grateful for teaching us the source of the many important concepts of the subject.

Finally, We Thanks All Person who directly or indirectly supported us in making This Project.

And last but not the least we are very much thankful to all the classmatesand friends who helped us achieving the completion of project work.

ABSTRACT

Crops in farms are many times ravaged by local animals like buffaloes, cows, goats, birds etc. This leads to huge losses for the farmers. It is not possible for farmers to barricade entire fields or stay on field 24 hours and guard it. So here we propose automatic crop protection system from animals. This is a microcontroller based system using PIC family microcontroller. This system uses a motion sensor to detect wild animals approaching near the field. In such a case the sensor signals the microcontroller to take action. The microcontroller now sounds an alarm to woo the animals away from the field as well as sends sms to the farmer so that he may know about the issue and come to the spot in case the animals don't turn away by the alarm. This ensures complete safety of crops from animals thus protecting the farmers loss.

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INTRODUCTION:-

Project Description :-

According to multiple media reports and our research from our own villages multiple type of fencing failed to protect these farms. Though many Jhatka fence are also available but gain it's not ethical to harm them and also these fences do not inform farmers that anyone is entering in the fence. To overcome these problems, we are creating a system with minimum setups according to size of farm using LDR sensors, GSM Module, Radio Communication module etc.

ADVANTAGES :-

- Security to Assets.
- Low cost
- Crop protection

DISADVANTAGES :-

- On the other hand, the disadvantages to widespread pesticide use are significant

• **AEIOU FRAMEWORK:-**

.1 Activities :

- Farming
- Cropping
- Sow the seed
- Pesticides
- Cutting

.2 Environment :

- Summer
- Winter
- Monsoon
- Farm

.3 Interactions :

- Farmer
- Engineer
- Shopkeeper

.4 Objects :

- Tractor
- Combine harvester
- Cultivator
- Seed drill

.5 User:

- Farmer
- Government
- Farming company
- Agriculture

AEIOU CANVAS IMAGE :-

AEIOU Summary		Group ID: 390818	Date: 30/09/22	Version:
Domain Name: Advance Crop Protection System				
Environment :	Interaction :	Objects :		
Summer	Farmer	Tractor		
Winter	Engineer	Combine Harvester		
Monsoon	Shopkeeper	Cultivator		
Farm		Seed Drill		
Activities :		Users :		
Farming	Pesticides	Farmer		
Croping	Cutting	Government		
Sow the Seeds		Farming Company		
		Agriculture		

- **EMPATHY MAPPING :-**

.1 Users :

- Farmer
- Agriculture
- Pharmacy company

2.2 Stakeholders :

- Engineers
- Manufacturer
- Equipment Manufacturers
- Shopkeeper

2.3 Activities :

- Cropping
- Environment
- Farming

.2 Story boarding :

Happy :-



A good fact about this domain or project is that pesticides can help to improve growth behavior of crops, they give higher crop yields.

After the implementation of this project calling farms were assured of their crops safety they were satisfied about their investment in the model

Sad:-



A bad part about this domain or project is that pesticides can lead to behavior sold pollution and a not another one is it can reduce population of important insect.

People who did not invest in the project sash oh their crop were still attacked by cattle. The crop & money is still feed by them. They shall invest in the model in order to loss.

EMPATHY MAPPING IMAGE :-

Design For Date	Design By Version
USER <div>Farmer</div> <div>Agriculture</div> <div>Pharmaceutical</div>	STAKEHOLDERS <div>Engineer</div> <div>Manufacturers</div> <div>Equipment manufacturers</div> <div>Shopkeepers</div>
ACTIVITIES <div>Croping</div> <div>Environment</div> <div>Farming</div>	
STORY BOARDING	
HAPPY <p>A good fact about this domain or project is that pesticide can help to improve growth behaviour of crops. they give higher crop yield.</p>	
HAPPY <p>After the implementation of this project, people having farms were assured of their crops safety. They were satisfied about their investments in the model.</p>	
SAD <p>A bad part about this domain or project is that pesticides can lead to serious water pollution, and so not another one is it can reduce population of freshwater insects.</p>	
SAD <p>People who did not invest in the project saw how their crops were still attacked by cattle. The loss of crop/money is still faced by them. They still invest in the model in order to the loss.</p>	

- **IDEATION CANVAS :-**

.1 People :

- Farmer
- Government retailers
- Engineers

.2 Activities :

- Sense & woo approaching animals
- Notify farmers
- Protect crops

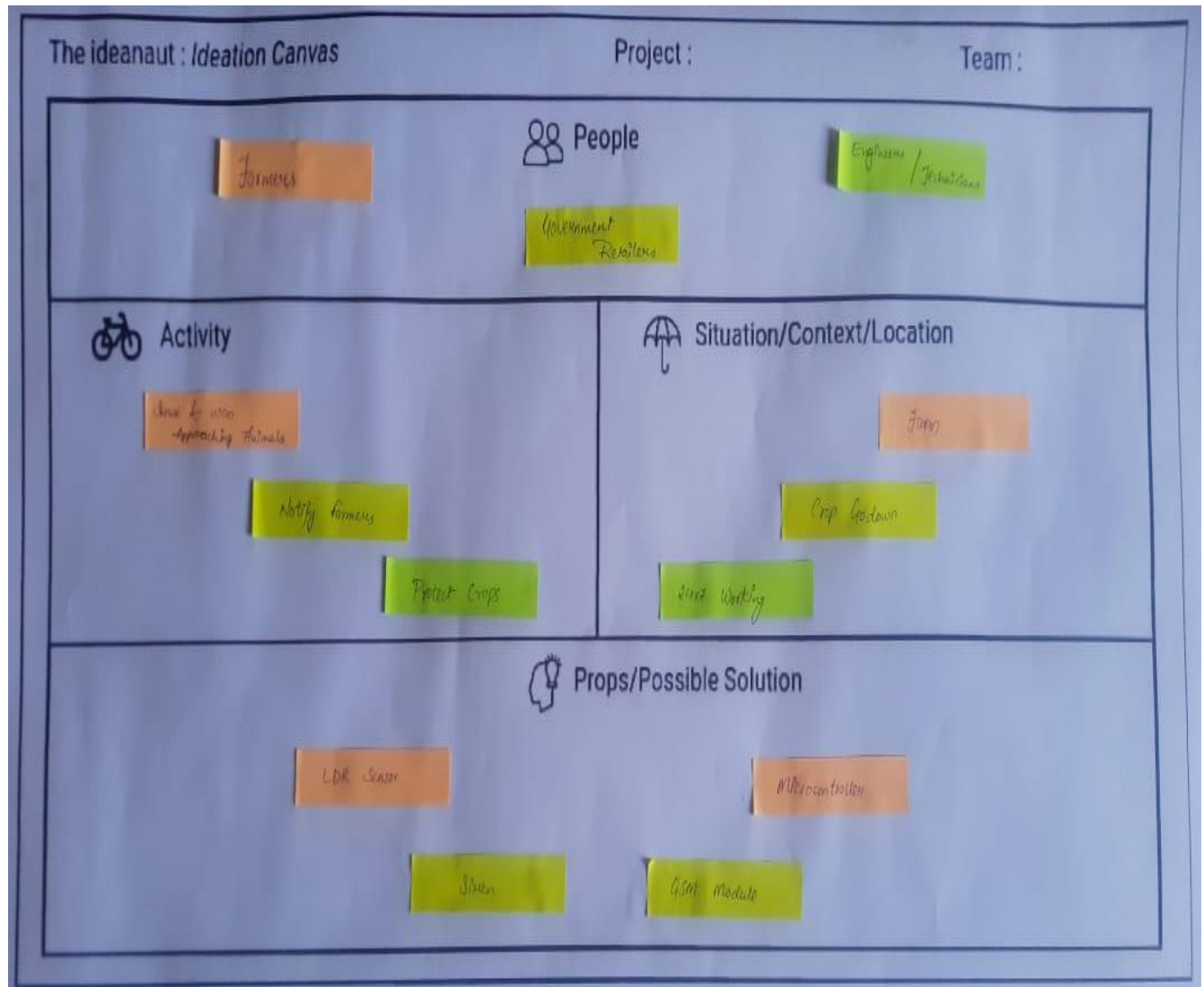
.3 Situation/context/location :

- Farm
- Crop Godown
- 24x7 Working

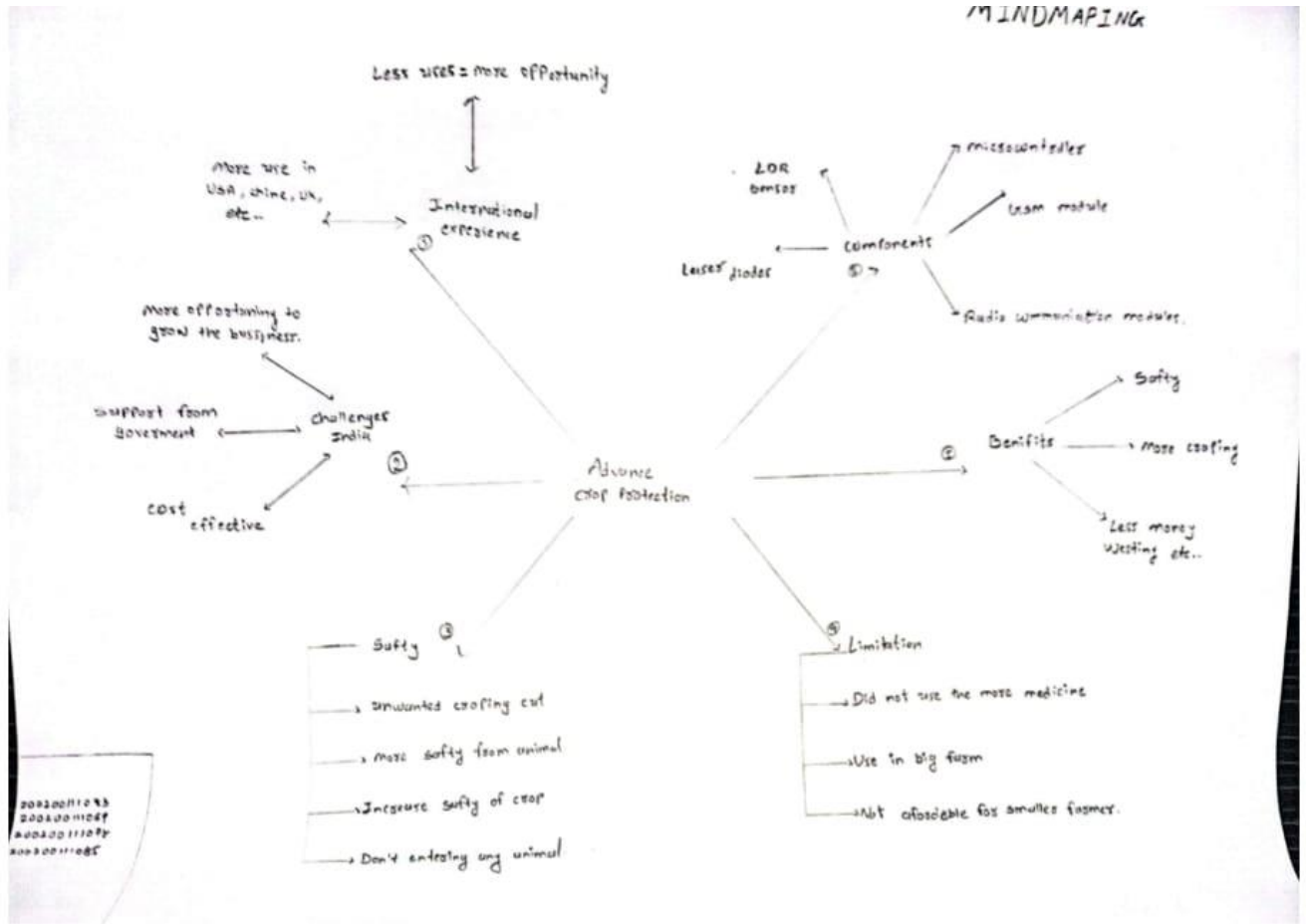
.4 Props/possible solution :

- LDR Sensor
- GSM Module
- Siren
- Microcontroller

IDEATION CANVAS IMAGE :-



• MIND MAPPING CANVAS :-



- **PRODUCT DEVELOPMENT CANVAS:**

- .1 Product experience:**

- Provides protection form cattle
 - Receive sms & calls

- .2 Product functions:**

- Protect crop
 - Notify farmers
 - Sense & Woo Approaching animals

- .3 Customer Revalidation:**

- Highly Recommended
 - Low Cost

- .4 Product Feature:**

- Automatic alert system
 - Real time Data Transfer

5 Components :

- Laser diodes
- Microcontroller
- LDR sensors
- GSM module
- Sirens & speakers
- Radio communication module

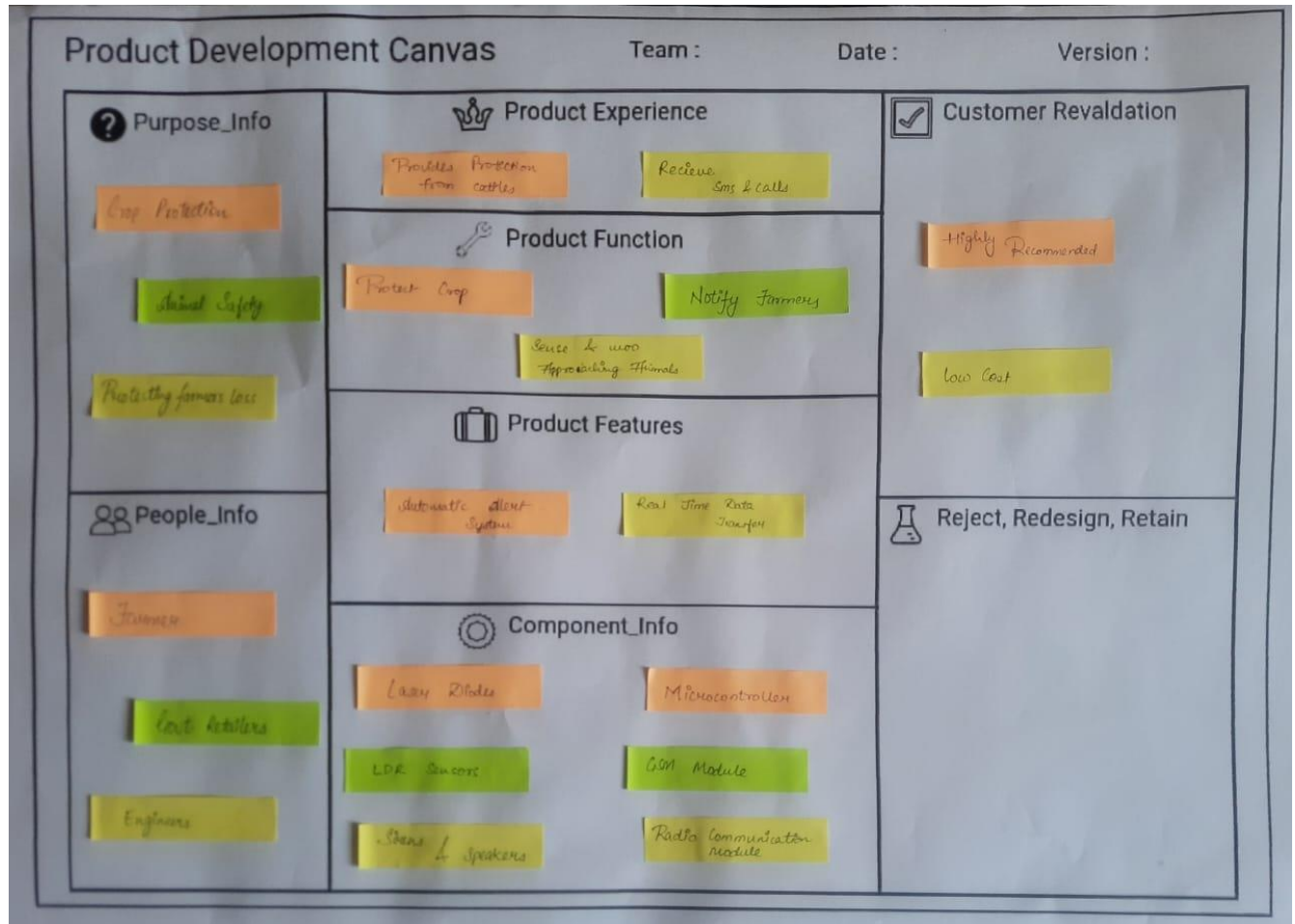
6. Customer Revalidation :

- Highly recommended
- Low cost

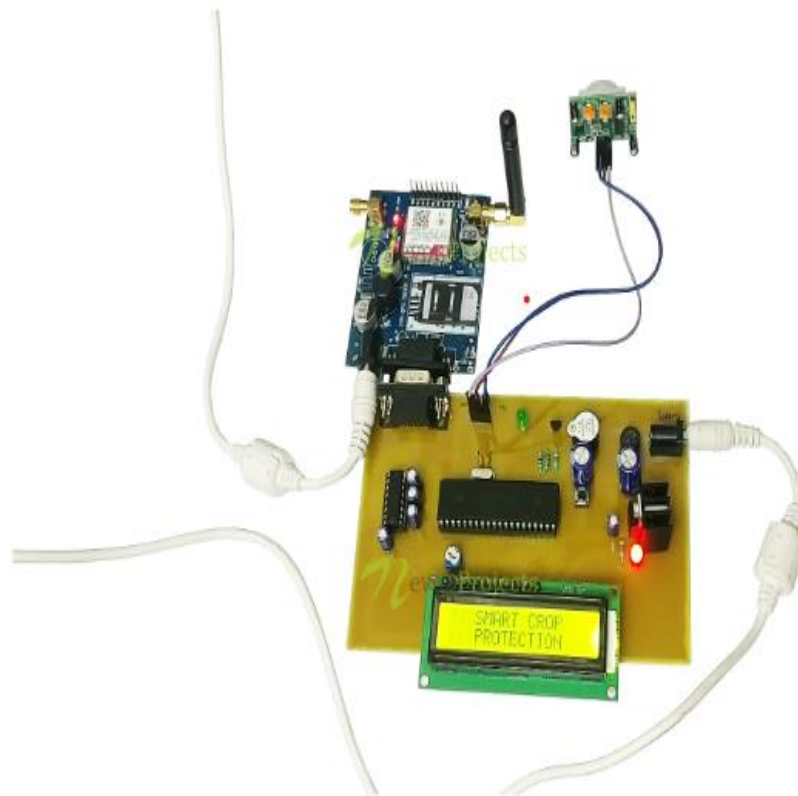
7. Reject, Redesign and Retain :

- USE OF GSM AND RADIO MODULE FOR COMMUNICATION
- USE OF WIRE AS BARRICADE
- USE OF DIFF SOUNDS

PRODUCT DEVELOPMENT IMAGE :-



8. PROTOTYPE MODEL :-



9. Learning need matrix:-

