


IDEATION PHASE BRAINSTORM

DATE	16 OCTOBER 2022
TEAM ID	PNT2022TMID14113
PROJECT NAME	IOT-BASED SMART CROP PROTECTION SYSTEM FOR AGRICULTURE
MAXIMUM MARKS	4 MARKS

<https://app.mural.co/invitation/mural/ibmteam6597/1666073909760?sender=uc1b75701e93438003d944244&key=619d40a4-c9db-43a2-ae8c-b712be92e639>




Step-1: Team Gathering, Collaboration and Select the Problem Statement


Template




Brainstorm & idea prioritization

Use this template in your own brainstorming sessions so your team can unleash their imagination and start shaping concepts even if you're not sitting in the same room.


 10 minutes to prepare
 1 hour to collaborate
 2-8 people recommended

 Share template feedback



Before you collaborate

A little bit of preparation goes a long way with this session. Here's what you need to do to get going.

 10 minutes

A Team gathering
Define who should participate in the session and send an invite. Share relevant information or pre-work ahead.

B Set the goal
Think about the problem you'll be focusing on solving in the brainstorming session.

C Learn how to use the facilitation tools
Use the Facilitation Superpowers to run a happy and productive session.

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Problem

- Animals like wild boars, buffaloes, cows, elephant, monkeys, birds etc. damages the crop lot which results in loss of production and so of farmer. It is very difficult for farmer to keep an eye on the field every time. Therefore it is very important to monitor the nearby presence of animals. Our main aim to design a system that can help to farmer to protect his farm from, animals
- This system also helps farmers to monitor the soil moisture levels in the field and also the temperature and humidity values near the field.

Step-2: Brainstorm, Idea Listing, and Grouping

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Brainstorm

M.GOKULAKANNAN

The speakers will be given the prerecorded audio input, which will give different kinds of sounds that can scare the bird and prevent the crop. It can also be accessed and turned off when not needed.

The proposed system uses a Raspberry pi board and the different sensors and cameras are interfaced with the puppet. As soon as the PIR sensors go High on detecting motion within a range of 10 meters, the camera will be turned ON which the first captures an image and then starts recording the video for about five to six minutes.

The crop field protection from the intrusion of animals using wireless technology which protect the crop from damage caused by animals and birds as well as divert the animal without any harm. The animal detection system is designed to detect the presence of animals and offer a warning.

The APR board generates harsh sound to divert the path of animals. Due to this harsh sound, animals will divert their path. The message and call will be given to the farm owner.

P.PARTHASARATHI

The camera used in the ov7670 model which will take the picture of the intruder. Once the movement is detected, the buzzers are activated. Then the picture will be sent to the registered mobile number of the owner using GSM and the access is controlled.

The picture which will be stored on boards as well as cloud. Simultaneously, a message will be generated automatically to the registered number using SIM900A module to inform about the intrusion along with the details of the temperature and humidity obtained by interfacing the DHT temperature and humidity sensor.

It includes the various sensors connected to the Arduino board such as motion sensor, ultrasonic sensor, LDR, etc. and other components are APR board, LCD, DC motor, etc. When any animal tries to enter the farm, then the ultrasonic sensor detects the presence of the animal and sends a signal to the Arduino board.

In the message, there is a facility that shows the direction of the intruder, i.e., animal is just entered from the left side, also. If any animal tries to enter the farm, then an electric fence is provided which will give a small amount of shock that will not cause any severe harm to the animal.

T.SUNIL RAJ

Once the sensor gets adapted to the surrounding, then any variation in the level of infrared radiations shall trigger the PIR sensor.

If the motion detection is due to an authorized person with a valid RFID, who is mostly a farm worker, his attendance gets recorded automatically.

Then the agriculture sling starts to rotate to divert the path of birds. Also, there is a light facility at night time. When the resistance of LDR decreases, then the flashlight will be turned on. Due to the high intensity of light, animals will not try to enter the farm at night time too.

The intention is only to divert the animals' path. Similar when birds try to enter the farm, then the motion sensor senses the presence of birds and gives a signal to the Arduino board.

R.S.SRIDHARAN

The Arduino Uno also known as the ATmega 328P is an 8-bit RISC architecture microcontroller. Arduino Uno is a main component of the system. Other components which are important parts of the system are PIR and ultrasonic sensors, a camera, GSM module, buzzers, and the speaker.

The camera used in the system is the OV7670 model which will take the picture of the intruder.

Whereas if the motion detection is due to that of an unauthorized person without a valid RFID tag, the system further processes the image and video using Haar feature-based cascade classifiers for object detection and decides if the entity is an animal or human intruder.

A microcontroller (Arduino Uno) is used for reading the inputs from PIR, a soil moisture sensor. The GSM module is used for sending SMS to the farmer when movement is detected.

Group ideas

IOT SYSTEM

DETECTION AND SOUND

The PIR sensors go high on detecting motion within a range of 10 meters, the camera will be turned ON which first captures an image and then starts recording the video for about five to six minutes.

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The camera used in the system is the OV7670 model which will take the picture of the intruder. once the movement is detected, the buzzers are activated.

The speaker will be given the prerecorded audio input, which will give different kinds of sounds continuously that can scare the birds and prevent the crops. it can also be accessed and turned off when not needed.

the proposed system uses a raspberry pi board and the different sensors and cameras are interface with the puppet.

The APR board generate harsh sound to divert the path animals. Due to this harsh sound animal will sound animal will divert their path.

INTRUDER'S ALERTY

in the message, there is a facility that shows the direction of the intruder i.e. animal is just entered from the left side. Also, if any animal tries to enter the farm then an electric fence is provided which will give a small amount of shock that will not cause any severe harm to the animal

Due to this harsh sound animal will divert their path the message and call will be given to the farm owner.

Once the movement is detected, the buzzers are activated. Then the picture will be sent to the registered mobile number of the owner using GSM and the access is controlled.

Step-3: Idea Prioritization

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Prioritize

