
A PAPER ON PREVENTION OF CROP FROM ANIMAL

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Abstract

Suffering electrocution with intense pain causes animals in forest zones and agricultural fields human animal conflict is a major problem where enormous amounts of resources are lost and human life is in danger. Due to this People lose their crops, livestock, property, and their lives also. So this zone needs to be constantly monitored in order to Preventing wild animals from entering. With respect to this problem, we have made an effort to develop a system to track the field. That is, first it uses the sensor to detect intrusion around the area, and then the camera captures the image of the intruder and classifies it using image processing, and then takes appropriate action depending on the type of intruder. Finally, the farm owner and forest officials using GSM will be informed.

Keywords: *Animal, GSM, Farmer, Protection, intrusion, sensor system, Agricultural field.*

I. INTRODUCTION

Animal attacks in India are a common story nowadays. These attacks kill villagers and also destroy their crops because of the inaccessibility of any detection device. These villagers are left powerless to their fate due to a lack of adequate safety measures. A proper detection system may therefore help to save their lives and also to protect crops. The villagers' crops are also ruined because of constant animal interference. It is not always possible to fence the crops and paddy fields. So the risk of cows and goats eating away from crops is very present [1]. This could lead to an enormous waste of crops created by farmers. To allow the best use of technology for mobile communication. This system allows us to keep those wild animals away from the farmlands and provides functionality for surveillance. The odor of rotten egg has been found to help prevent wild pigs and deer from eating crops, so farmers spray the rotten egg solution manually on their fields, and firecrackers are used to stop the wild elephants that eat the crops. This project is based on surveillance with an animal ward-off system employed in farmlands in order to prevent crop vandalization by wild animals. In addition to providing protection this system distinguishes between an intruder and an authorized person using

RFID's, various PIR sensors are deployed in the area to detect any motion and hence turns ON a camera when movement is detected [2].

In the world, the economy of many countries is dependent upon agriculture. Despite economic growth, the cornerstone of the economy is agriculture. The main stability of the economy is agriculture. It contributes to the domestic gross product. Agriculture meets people's food needs and provides a variety of raw materials for industry. Yet there would be a huge loss of crops due to animal interference on agricultural land. Crops are going to be completely ruined. There will be a great deal of losses for farmers. Protecting agricultural fields or farms from animals is very important in order to prevent such financial losses. In order to solve this issue, we will design a system in our proposed work to prevent animals from entering the farm. Our main objective of the project is to build prohibitive farm fencing to prevent losses caused by animals [3]. Such prohibitive fencing protects the crop against harm that indirectly increases the crop's yield. The creation system is not detrimental to both animals and humans and will not affect them. The project's theme is to use an embedded framework to build an intelligent security system for farm defense. In the Panhandle, such fences were mostly solar-powered and were used widely to prevent cattle from wandering into farmland. One big drawback of an electric fence is that it could slow down the scope of emergency services. This may also lead to assistance reaching you after it is too late. When bushes or trees grow nearby, there is a possibility of electric fences posing the risk of fire. Therefore, keeping the area near the fence clear of any such vegetation is important. It will also have to ensure that the grounding has been done properly. Failure to do so might render the electric fence ineffective. In this case there will be loss of animal life and it is very dangerous to human beings also. It will be too expensive for farmers [4].

It involves automation of certain methods used to prevent the wild animals from entering the farmlands and destroying the crops, an electronic firecracker (for bigger animals, like elephant) and a rotten egg spray (for smaller animals like wild pigs and deer) which have been found useful to ward off the wild animals, people use Haar feature based cascade classifiers for object detection to distinguish between the animal and human. A notification will be created automatically when such intrusions occur and the cameras used are switched ON to capture an image and start recording the video for some time that will be saved on the SD card as well as stored on the cloud, i.e. dropbox, the landowner can then display the video on any smart device and access it later. The Raspberry pi board interfaces all sensors and parts. So we come up with a product like that that can be very beneficial to farmers. It prevents the loss of crops and increases the yield, and also protects the farm from intruders [5].

One of the major threats to reducing crop yields is crop damage caused by animal attacks. Crop raiding is becoming one of the most conflicts antagonizing human wildlife relationships due to the extension of cultivated land into prior wildlife habitat. With a population of more than 200,000 wild boars (*Sus-scrofa*) and 300,000 deer in the Tuscany region of Italy alone, which

is estimated to be four times greater than any other region in Italy, vineyards and farmland are increasingly destroyed, resulting in an enormous drop in the production of wine. Annual production losses in the wine industry are estimated at 130,000 bottles of wine, amounting to between EUR 8,962,250 and EUR 13,036,000, with an estimated annual expense to the government of about EUR 2,5 million per year. Apart from crop disruption, up to 1000 road accidents are also caused annually by these wild animals [6].

The current methods used to counter this problem include the use of electrified welded mesh fences (usually 30cm in the ground), chemicals or organic substances and gas cannons. The use of Hellikites, balloons, shot/gas guns, string & stone, etc., is other typical methods applied by farmers. Sometimes, such solutions are cruel and unsuccessful. They often entail a large amount of cost of installation and maintenance and some of the methods impact both humans and animals with environmental contamination. On the other hand, the chemical products used to deter these animal attacks have an implementation cost per hectare and rely on weather conditions for their effectiveness, as rain can cause dilution effect [7]. Technology assistance can significantly enhance crop yield at different stages of agricultural processes. In addition, in agriculture and particularly in the production of wine, very small changes in the microclimate can have an effect on the quality of the product. A clear view of the meteorological conditions in a very small area of the entire territory, usually distinguished by very different soils, is important for agronomists. Diseases such as Bunch-rot "Botrytis cinerea" and Peronospora in vineyards can be prevented by an hourly monitoring of the plant and by providing timely based required treatment to the plant. Based on the above problems, a complete system that will both protect and monitor a vineyard is of significant importance.

There are various methods to repeal animals form fields are:

Wire fences: Constructed from metal wires that form a physical barrier, woven together. The fences are solid, long-lasting, and require relatively little upkeep. They are, however, costly and recommended only for the defense of crops of high value.

Plastic fences: In general, polypropylene fences are less costly and simpler to build and install. Reconstruction than other styles. In addition, these fences are widely permissible and comply with different regulations. Their drawbacks include their short lifetime (up to 10 years) and dubious efficacy in areas with a higher risk of harm to wild animals.

Electric fences: Animals who come into contact with the fence are programmed to cause an electric shock, thus stopping animals from breaching the fence. These fences are long lasting and an efficient measure of crop security. Depending on the particular form and size of an area, costs differ. It is very important to ensure that they are approved for use in a particular area and for protection against endangered animal species prior to buying electric fences. In addition, to

avoid any potential human interaction, it is recommended that electric fences be labeled with a warning sign.

Electronic repellent: These are effective, long lasting, and eco-friendly methods for crop protection that repels animals without harming them. Farmers use one of the following two types of electronic repellents:

1. Ultrasonic electronic repellent: silent to humans, high-frequency sound waves repel wild animals.
2. Sonic electronic repellent: audible noise that scares animals.

Electronic surveillance system: This device will enable farmers to effectively protect their fields and orchards by warding off animals with automatically operated ultrasonic animal repellent buzzers, electronic fireworks and even hooters, without human interference. It will also allow them to track their fields remotely from any location, thereby removing the need for a person's physical presence in the fields.

Microcontroller based system: Fencing wire is used as a sensor in this technique. The circuit will be grounded when animals come in contact with this open cable and we receive the initial input signal signaling the presence of animals in the fence. The machine is triggered, the buzzer is switched on immediately, the flash light will be switched on at night and the message will be sent to the farmer. The power supply is provided by a solar panel or by a powered power supply.

II. CONCLUSION

The need to protect the crops from being vandalized by wild animals is becoming mandatory since food is the elixir of life. Although the methods used in previous days, such as fences and repellents, were cost-effective, the expected results are not given. The techniques developed in recent days, however, have been found to be more helpful and solve the problem for which it has been used to the full extent. Therefore, the use of these modules across agricultural fields will reduce the losses to farmers caused by animals and help to achieve good yields.

III. REFERENCES

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