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Farm Area Protection System Development for Animal Entry Detection

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ABSTRACT: The main aim is to protect the crops from damage caused by animal as well as divert the animal without any harm. Animal detection system is designed to detect the presence of animal and to offer warning. In this we used PIR and ultrasonic sensors to detect the movement of the animal and send signal to the controller. It diverts the animal by producing sound and signal further, this signal is transmitted to GSM and which gives an alert to farmers.

KEYWORDS: PIR sensor, ultrasonic sensor, APR board, Farmer.

I. INTRODUCTION

Over population results in a deforestation and shortage of food, water and shelter in forest areas. So, Animals interference in residential areas is increasing day by day which affects human life and property.

Agriculture is the backbone of the economy but because of animal interference in agricultural lands, there will be huge loss of crops. Elephants and other animals coming in to contact with humans, impact negatively in various ways such as by degradation of crops, damaging grain stores, water supplies, houses and other assets, injuring and death of humans.

Farmers in India face serious threats from pests, natural calamities & damage by animals resulting in lower yields. Traditional methods followed by farmers are not effective and so not feasible to hire guards to keep an eye on crops and prevent wild animals. As safety of both human and animal is equally vital. So, animal detection system is necessary in farm areas.

II. LITERATURE REVIEW

Traditional electric fence has been helpful as a guard of crops. However, that system has some problems such as it cannot notify the voltage which occasionally drops. Furthermore, the owners of the fence have to check the voltage but they cannot know it without going there. An electric fence management system we develop uses wireless communication, and it enables the owners to know the voltage and the state of the electric fence and monitor it from remote locations safely. It describes a demonstrative experiment in a mountainous region, and suggests an approach to resolve some problems. An electric fence system using wireless network technology has been developed. The system consists of several observers and a display, the farmers are able to measure voltage at the fence, and have an ability to show it. The observers transmit the voltage with the direction of the voltage leak to the display. The display shows the received data and the farmers can know the state of the electric fence.

III. WORKING / METHODOLOGY

Here, basically the project works on solar energy as the solar energy is at free cost of energy and the electricity that is produced from solar energy can be used for security purpose of the agriculture field.

Once the circuit is installed in the agricultural field, the sensor connected to the circuit will be placed on the fencing wires and the fencing wires will be connected to the poles.

The battery will be connected to the circuit.

If anyone tries to enter the field by breaking or touching the fencing wires the circuit will generate an alarm system by which the person or thief or animals will run away and hence crops or the raw materials can be protected.

This circuit can be useful in agriculture as it can bring revolution to the owner or the workers or the farmers can safe guard their crops or raw material from stealing from the thieves or the animals.

This technology can be a great source of hybrid technology as it runs on solar energy, an ever ending source and can also bring spontaneous and effective alertness while in terms of protection common in agricultural field.

The solar panel that are used in roof top of house or the industry will now can be used for agriculture fencing protection system.

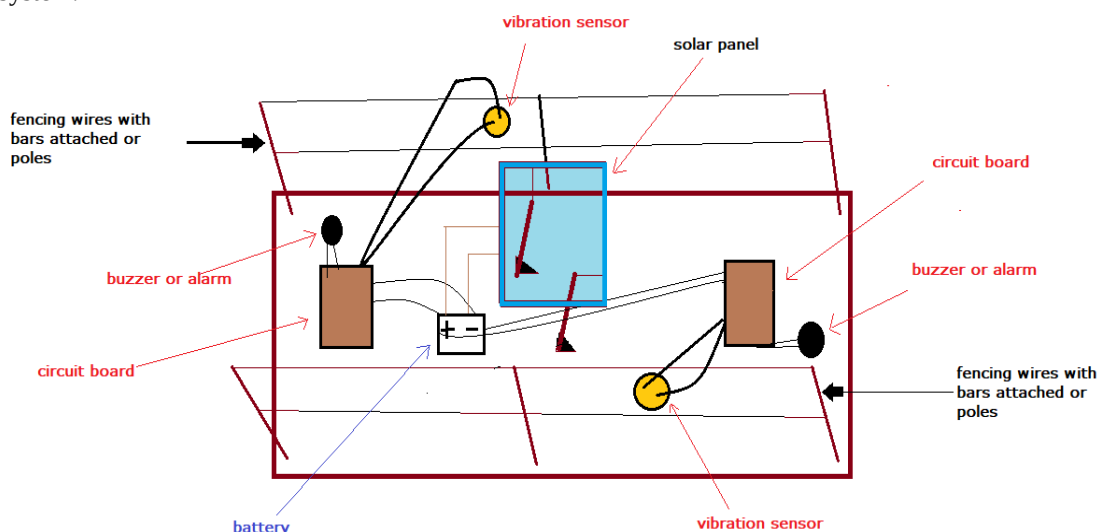


Figure – Model

First of all the wooden base is placed and the metal bars are fitted on both the ends of the wooden base.

The bars area is fitted with clamps.

The solar panel is fitted in between the wooden base with metal bars and clamps.

The sensor is placed on the fencing wires and the circuit is connected to the battery.

The fencing wires are installed on the metal bars of both the ends.

The battery is placed in between near the solar and the wires area are connected to the both the circuits.

The solar panels wires are connected to the battery for charging purpose.

IV. CONCLUSION

In rural parts of India, farmers encounter severe threats such as damage done by animals. Hence, to overcome this issue we have designed a system in which sound is played and by using LDR it detects light intensity, if it is less, it will focus the light. So that wild animals will not enter into the farm. It will run away. GSM module sends message to the farmer to alert him. From this it is concluded that the design system is very useful and affordable to the farmer. The design system will not be dangerous to animal and human being, and it protects farm.

V. FUTURE ENHANCEMENT

In the future, there will be very large scope, this project can be made based on wireless networks. Wireless sensor network and sensors of different types are used to collect the information of crop conditions and environmental changes and these information is transmitted through network to the farmer that initiates corrective actions. Farmers are connected and aware of the conditions of the agricultural field at anytime and anywhere in the world.



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