Animal Detection System

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Abstract: **In many different contexts, including the home, hospitals, schools, public spaces, farms, etc., surveillance is crucial. It enables us to keep an eye on a certain region, stop theft, and also offers proof of evidence. In the case of farms or agricultural fields, surveillance is crucial to deterring unwanted entrance as well as to safeguarding the region from animals. We frequently forget that the primary enemies of such farmers are the animals that destroy their crops, despite the fact that many ways focus simply on surveillance, which is primarily for human intruders. The owners of the field suffer a large financial loss as a result of the low crop production. This problem is so conspicuous that sometimes the farmers decide to leave the areas barren due to such frequent animal attacks. This system helps us to keep away such wild animals from the farmlands as well as provides surveillance functionality.**

Keywords: **Wild animal, PIR sensor, Farmlands.**

1. Introduction

Deforestation due to overpopulation causes a lack of food, water, and shelter in forested areas. The amount of animal interference in residential areas is growing, which has an impact on both human life and property. Although while it leads to conflicts between humans and animals, every living thing on earth plays a crucial part in the ecosystem, according to the laws of nature. Agriculture is the foundation of the economy, but crops may suffer severe damage as a result of animal intervention on agricultural property. Elephants and other animals that interact with people negatively affect them in a variety of ways. By destroying crops, grain bins, water sources, homes, and other property, as well as by causing human injury and death. Farmers in India face serious threats from pests, natural calamities and damage by animals resulting in lower yields. Traditional methods followed by farmers are not that effective and it is not feasible to hire guards to keep an eye on crops and prevent those wild animals. Since safety of both human and animals is equally vital. Hence, animal detection system is necessary in farm areas.

Animal attacks in India are a common story nowadays. Due to the unavailability of any detection system, these attacks kill villagers and also destroy their crops. Therefore, a proper detection system could help save their lives and also help preserve the crops. Crops of villagers are destroyed due to the frequent interference of animals. The crops and paddy fields cannot be always fenced, so the possibility of crops being eaten away by cows and goats is always present.

The goals of this paper utilize the worldwide system for mobile communication (GSM) and offer short message service in order to make the most of mobile communication technology (SMS). This technology offers surveillance capabilities in addition to helping us keep such wild creatures out of our farmlands. It has been discovered that the smell of a rotting egg deters deer and wild pigs from destroying crops. In order to prevent wild elephants from eating the crops, farmers manually spray their fields with a solution made from rotten eggs and use firecrackers to scare them away. The goal of this project is to stop wild animals from damaging crops in farmlands by using surveillance and an animal ward-off system.In addition to providing protection, this system distinguishes between an intruder and an authorized person using RFID.

Various PIR sensors are deployed in the area to detect any motion and hence turn ON a camera every time a movement is detected, thereby providing real-time monitoring.
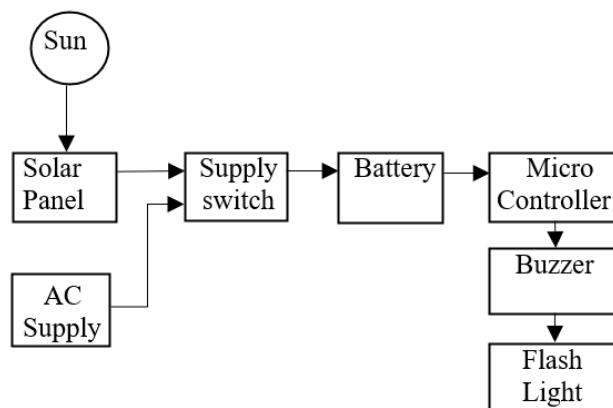
2. Methodology

Fig. 1. Block diagram

The major purpose of the current systems is surveillance. Particularly in such application locations, these devices don't offer protection against wild animals. They must also take action based on the kind of animal that tries to enter the area, as various strategies are used to keep various species out of such limited regions. However, the farmers turn to alternative techniques like erecting human puppets and effigies in their farms, which are somewhat efficient at scaring away birds but ineffective at keeping out wild animals. The construction of physical barriers, the installation of electric fences, and manual

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surveillance are some additional techniques that farmers frequently utilize to stop animals from damaging their crops.

3. Hardware Implementation

1) Solar panel

A collection of photovoltaic solar cells installed on a frame is referred to as a solar cell panel, solar electric panel, or solar panel. It is also referred to as a photovoltaic module or PV panel. Sunlight is used by solar panels to collect radiant energy, which is then transformed into direct current electricity.

2) Battery

One of the most common of the 12V family of batteries, these are commonly found in vehicles to store energy for operating the electrical components that makes cars start and run. This includes the ignition, starter motor and the electric components which facilitate the crank and start of the engine.

3) Micro controller

A microcontroller is a small computer on a single VLSI integrated circuit chip. A microcontroller contains one or more CPUs along with memory and programmable input/output peripherals

4) Buzzer

A buzzer or beeper is an audio signaling device, which may be mechanical, electromechanical, or piezoelectric (piezo for short). Typical uses of buzzers and beepers include alarm devices, timers, train and confirmation of user input such as a mouse click or keystroke.

5) PIR sensor

A passive infrared sensor is an electronic sensor that measures infrared light radiating from objects in its field of view. They are most often used in PIR-based motion detectors. PIR sensors are commonly used in security alarms and automatic lighting applications.

6) Flash light

A flashlight or torch is a portable hand-held electric lamp. Formerly, the light source typically was a miniature incandescent light bulb, but these have been displaced by light-emitting diodes since the mid-2000s.

4. Conclusion

In India, many farmers face huge loss because of animals. To overcome this issue, the designed system produces the sound to scare animals, so that animals will automatically run away. The main aim is to prevent the loss of crops and to protect the area from intruders and wild animals which poses a major threat to agriculture areas. The GSM module is used to make a call to the farmer to alert him. Therefore, the designed system is affordable and useful for the farmers. The designed system won't be harmful to animals and human beings whilst protecting the farm areas. The system is capable enough to protect the farm at day and night with IoT monitoring.

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