

## SMART AGRICULTURE AND CROP PROTECTION SYSTEM

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### 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 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.

### 1. INTRODUCTION

In the world, the economy of many countries is dependent upon agriculture. In spite of economic

development agriculture is the backbone of the economy. Agriculture is the main stay of economy. It contributes to the gross domestic product. Agriculture meets food requirements of the people and produces several raw materials for industries. But because of animal interference in agricultural lands, there will be huge loss of crops. Crop will be totally getting destroyed. There will be large amount of loss of farmer. To avoid these financial losses it is very important to protect agricultural field or farms from animal. To overcome this problem, in our proposed work we shall design a system to prevent the entry of animals into the farm by using PIR. Our main purpose of project is to develop intruder alert to the farm, to avoid losses due to animals. These intruder alert protect the crop from damaging that indirectly

increase yield of the crop. The develop system will not harmful and injurious to animal as well as human beings. Theme of project is to design an intelligent security system for farm protection by using Embedded system based microcontroller. 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. Due to lack of proper safety measures, these villagers are left helpless to their fate. Therefore a proper detection system could help save their lives and also to the preservation of crops. Also the crops of villagers are destroyed due to 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 are very much present. This could result in huge wastage of crops produced by the farmers. To make the best use of mobile communication technology, the objectives of this therefore utilizes global system for mobile communication (GSM) and provide short message service (SMS). This system helps us to keep away such wild animals from the farmlands as well as provides surveillance functionality. It has been found that the odour of rotten egg helps to keep the wild pigs and deer from destroying the crops, hence the farmers manually spray the rotten egg solution on their fields, and firecrackers are used to ward off the wild elephants that destroy the crops. This project is based on surveillance with an animal wardoff system

employed in farmlands in order to prevent crop vandalization by wild animals. Various PIR sensors are deployed in the area to detect any motion. It involves automation of certain methods used to prevent the wild animals from entering the farmlands and destroying the crops.

## LITERATURE SURVEY

**SMART CROP PROTECTION SYSTEM FROM LIVING OBJECTS AND FIRE USING ARDUINO** This is a arduino Uno based system. This system uses a motion sensor to detect wild animals approaching near the field and smoke sensor to detect the fire. 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 and makes call, so that farmer may know about the issue and come to the spot in case the animals don't turn away by the alarm. If there is a smoke, it immediately turns ON the motor. This ensures complete safety of crops from animals and from fire thus protecting the farmer's loss.

**Smart Crop Protection System** In our proposed work, when the animal enters into the farm area. The LDR's placed in the vertical positions help us to detect the size of the animal whereas PIR sensors are used to detect position of the animal. Immediately, the APR board will be on, and the sound is played to divert the animal. During night time the flash light will be on and the message will be sent to the farmer. The LCD display the presence of animal and LDR readings. The GSM module is used for sending a message to warn the farmer about the intrusion.

**Smart Crop Protection System from Animals and Fire using Arduino** In the proposed system, Crop monitoring is done where sensors are used to collect information in the agricultural field. In this PIR, Smoke sensor and GSM is used. When animals come near to the PIR sensor and it detects the animal movement. After getting that initial input signal, it is passed for further processing. Then it will be given to the microcontroller. Our system will be activated, immediately buzzer will be on, at the same time it sends an SMS and makes call to the owner. Microcontroller Block is used for reading the inputs from PIR and Smoke sensor. Whole process is controlled by microcontroller. The GSM module is used for sending SMS and making call to farmer when movement or smoke is detected. It also turns ON the motor, when smoke is detected. It alerts the

farmer that some animals try to enter into the farm. Our LCD data will be display for SMS sending.

### 3. CONCLUSION

When an animal is detected by the PIR sensor, it will turn ON the buzzer which will create a sound that will drive animals away from the crops and send alert SMS to farmer. Agriculture monitoring system will smartly water plants only when needed thus saving water.

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