IOT BASED SMART CROP PROTECTION SYSTEM – PROBLEM STATEMENT

Abstract: Food is the most important requirement for living beings. the main product of our food come directly or indirectly from agriculture. now a days security of agriculture field is very important Crops in farms are many times damaged by birds and animals these causes major losses to farmers. In every day farmers facing a different kind of problem. The birds are the major problem in agriculture birds are falling on crop and eating it. farmers cannot stay on the field for 24 hours and protect it to over come the this problem an birds and animal detection system has been designed to detect the presence of birds and animals and it offers a warning and divert the animal with out any harm the designed system will continuously check for any bird and animal to entire field. Birds and animal is having a specific range of hearing frequency. There irritating frequency is estimated by a specific logic at early morning and evening time birds falling on the crops and eating rice seeds, ragi crops corns and wheat…etc. So we can create irritating sound for birds and the flay outside of the field by using this idea we can reduce most affected problem in agriculture. This circuit uses the motion detector is an electrical device that utilizes a sensor to detect near by motion. such a device is often integrated as a component of a system that automatically performs a task or alerts a user motion in an area. The circuit mainly uses pir sensor, power source, buzzer, resistor, transistor.

Keywords: Arduino UNO, PIR Sensor, Buzzer, Transistor, LED.

I INTRODUCTION:

Animals attacks in farmers land is common now a days. Due to unavailability of any detection system. There a proper detection system could help to preservation of crops. Also the crops of farmers 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 advanced technology. This system helps us to keep away such wild animals from the farmlands as well as provides surveillance functionality. 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. All the sensors and components are interfaced to the Raspberry pi board. Hence we come up with such a product that can be very useful for farmers, it prevents the loss of crops and increases the yield, also protects the farm from intruders. Most of the activities of birds are either advantageous or disadvantageous to the farmers. Birds create negative impact on most of the agricultural activities and some agricultural activities attract birds as special feeding opportunities. The presence of insectivorous birds in croplands is beneficial to farmers up to some extent. In India, as a common remedy to the problem, attempts are regularly being made by the famers to reduce crop losses from birds by deploying measures for control of birds either through traditional means or by using bird scaring techniques, devices, and pesticides Wide varieties of variable crops attract granivorous birds which lead to significant damage to the crop yields globally. However, there are few studies pertaining to the awareness of the problem among the farmers and the magnitude of crop damage caused by the birds in India . The problem of crop damage by birds is faced by the farmers and the losses due to crop depredation

by birds are significant in terms of the gross crop yield. Birds can inflict damage to the crops and a loss to the farmers in all the stages of crops right from sowing and planting till harvesting.

II LITERATURE SURVEY :

One of the major economic issues faced by the country is agriculture as this is the sector which is source of livelihood for about 54% of Indians till date. Still today this sector is not well developed and faces lots of problems resulting into low productivity of crops. As 43% of land in India, is used for farming but contributes only 18% of the nation's GDP. The poor condition of agriculture in the country is the point of concern for Indians. The rural farmers in India suffer from poverty and most of them are illiterate so there is lack of good extension services. The problem of wild life attack on crops i.e., crop Vandalization is becoming very common in the states of Tamil Nadu, Himachal Pradesh, Punjab, Haryana, Kerala and many other states. Wild animals like monkeys, elephants, wild pigs, deer, wild dogs, bison, nilgais, estray animals like cows and buffaloes and even birds like parakeets cause a lot of damage to crops by running over them, eating and completely vandalizing them. Thislead to poor yield of crops and significant financial loss to the owners of the farmland. This problem is so pronounced that sometimes the farmer decide to leave the areas barren due to such frequent animal attacks.

Total annual loss in agriculture produce	
Reason	**Percentage**
Insects	**30%**
Weeds	**45%**
Disease	**20%**
Others	**5%**

2.1 Outcome of Literature Survey :

By the literature survey we came to know that we can solve the problem of crop destroyed by birds and animals. We can implement advanced form of bird and animal detection in a agriculture field these system using a Arduino and PIR sensor module. Birds and animals can detect from the PIR sensor and sends the digital signal to Arduino and buzzer.

III PROBLEM STATEMENT :

Animal attacks in India are a common story now a days. 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 increasing rate of decrease in forests and encroaching agriculture land is leading to an up rise in animal invasion of fields which has leads to a drastic change in farmers perception towards them. The harmony between a farmer and wild animals seems to be a next impossible thing.

IV- OBJECTIVES :

- The main aim of project is to protect the crops from damage caused by animal as well as divert the animal without any harm.
- In this project we used PIR and ultrasonic sensors to detect the movement of the animal and send signal to the controller.
- A repelling and a monitoring system is provided to prevent potential damages in Agriculture, both from wild animal attacks& birds
- To design a security system for farm protection.
- To prohibit the entry of animal into the farm to reduce farmer effort.
- To Design a sound system that buzzes and acts as animal repellent when animal tries to enter into the farm.
- The PIR sensor continuously monitors the field.

ADVANTAGES/DISADVANTAGES/APPLICATIONS

Advantages:

- Less maintenance.
- Smart crop protection system reduces the time of farmer.
- It is not possible for farmers to barricade entire fields or stay on field 24hours and guard.
- Smart crop protection system diverts the animal without any harm.
- This Reduce to huge losses for the farmers.
- Improved the utilization of local resources for crop production.
- Minimum human effort.

Disadvantages:

- System may get damage due to heavy rain and storms.
- It is not effective to all corps. Applications.
- Monitoring control system.
- Applicability of IOT in agriculture.
- It can also be used in forest regions.

CONCLUSION :

The problem of crop vandelzation by wild animals and fire has become a major social problem in current time. It requires urgent attention as no effective solution exists till date for this problem. Thus this project carries a great social relevance as it aims to address this problem. This project will help farmers in protecting their orchards and fields and save them from significant financial losses and will save them from the unproductive efforts that they endure for the protection their fields. This will also help them in achieving better crop yields thus leading to their economic wellbeing. The experimental results are obtained for particular animals and animals. It was successfully tested. It is a new approach in social aspects for wild animal death avoidance and accidents prevention. Animal specific frequency spectrum signals are generated. The specific animals are alerted with these signals of danger and successfully ran away.