

Scare Away Animals

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Abstract – India being lands of agriculture, it needs some innovation in the agriculture land. The Indian 70 percentage of economic growth depends on the agriculture. The protection of the crop plays important role, increase in the yield increases the economy of the India. Intrusion of animals leads huge loss to crop production and ultimately to the farmers. To avoid the entry of the animals the fencing method has been used, it difficult process for the hundred acres and it will be expensive and stressful. The purpose of this paper is to overcome such attacks by animals, an automated system to detect the entry of the animals is proposed.

Key Words: Raspberry pi, Sensor, Camera, FCM, Mobile Application.

1. INTRODUCTION

Agriculture is the main source of livelihood of many people in different parts of the world. Unfortunately farmers are still reliant on traditional techniques that have evolved hundreds of years ago. Due to this the yield of crops are becoming low. Also, there are a number of factors that contribute to the low yield of crops animal intrusion is also one among them. In recent years wild animals are special challenge for the farmers throughout the world, Animals like wild boars, elephant, tiger and monkeys, etc., cause serious damage to crops by animals running over the field, and trampling over the crops. It causes the financial problem to the framers. By incorporating various advanced sensing and controlling techniques, the crop yield can be increased and also is the animal intrusions. In this project a surveillance camera and vibration sensors are used. The farmer can see check the intrusion of animal in his agricultural field and can toggle between few options allowed to scare the animal away from his field, without his physical presence in the field. The farmer can control it from a remote area.

1.1 Existing System

In existing system, farmers usually use scare crows in their fields to protect their crops from the intrusion of birds and animals. Sometimes the farmer himself sits in the field to safeguard his crops from intruding animals. Farmer manually drives the intruding animal away from his field taking in lot of stress and time. This system is not accurate. It is not efficient. Lot of time wasted in running the intruding animal out of the field.

1.2 Proposed System

In this system, the farmers can view their agriculture fields in their mobile phones, with the help of a camera. Vibration sensors are used to detect the presence of intruding animal into the farm. Once the sensor senses the animal, notification is sent to the farmer. The farmer can perform operations to scare the animals to run the animal out from his field. The functions available are: activating scary and irritating sounds to scare the animal, electric lighting and activating electric fire. These functions will scare the animal without hurting it. Advantages of the proposed system: [1] Cost-efficient and easy to use. [2] Sensors detect the presence of intruding animal and alert the farmer. Saving the time of farmer. [3] The framer can choose hat operations are to be carried out to run the animal out from his farm by sitting at the remote place. [4] This system is accurate. [5] It an eco-friendly system which will not harm the animal as well as the cultivated crops.

2. WORKING

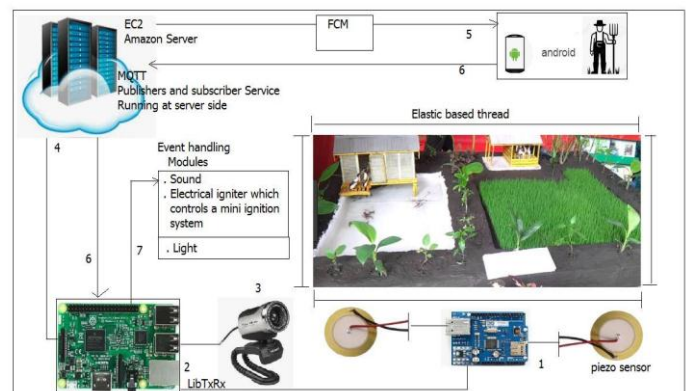


Fig -1: Architecture diagram

We have Piezo sensor in fig-1 which are vibration sensors. These sensors give values say for example from range 1-5. One piezo sensor is sufficient; if the model is huge then we may use more than one sensor. Arduino has both digital and analog pins. Piezo sensors are connected to the Arduino board. Each piezo sensors send analog values to the Arduino board. The models of sound, electric ignition and light if its analog we can connect it to Arduino. If it is digital we can

directly connect it to Raspberry pi. Vibration sensor values are collected and it is fed to the Raspberry Pi, Output of Arduino is connected to the Raspberry Pi. We will be using Lib TxRx inside Raspberry Pi, it reads all the data from Arduino. This Lib TxRx is for serial communication. Raspberry Pi goes computing whether the values are beyond threshold or not. When it is beyond threshold, it instructs the camera to capture the image. The camera will capture the image and uploads it to the cloud. In the cloud a storage system is allocated S3 storage will be allocated. Once the image are loaded into the amazon cloud, it is delivered as a notification to the mobile user. Fire base cloud messaging (FCM) is used for notification, he will click on that notification, and he will be able to viewed at the mobile. User will be given set of options like what action has to be performed on his agriculture field; viz., sound, electric fire or light based on the threshold and the image he can choose the action to be performed. The action chosen by the user will be ultimately controlled at IOT side i.e., at the agriculture land side. These actions are published using MQTT protocol. MQTT has two things publisher and subscriber. Publisher waits for the service and the subscriber says what service he wants. From the mobile what command will be chosen to run will be listened by the MQTT. The same command listened that command and control the target devices, i.e., sound, electric igniter which controls small gas system for fire and the light. The user will have options, and he can choose what he wants to be performed at his agriculture field, based on his action will be triggered. The devices at IOT site will be controlled by the user through a mobile.

3. RESULT

A System is developed to avoid the intrusion of animals in to the field. The System takes an input from the motion detection sensor (PIR sensor). The values obtained by the motion sensor will be provided as an input to the raspberry pi which does the computation to check whether the values are beyond the threshold or not, when it is beyond the threshold then raspberry pi will instruct the camera to capture the image, and the captured image will be uploaded in to the cloud. Fire based cloud messaging (FCM) is used for sending notification to the mobile. The user gets the notification he will be able to view the image through his mobile. User will be given a set of options like what actions had to be performed on his agriculture field. The Options that are provided here is sound, buzzer, electric fire etc. The user can choose the action by observing the image in his mobile, and action chosen by the user will be completely controlled by the IOT.

4. CONCLUSION

The problem with respect to the intrusion of animals in to the farm land has become a major issue for the farmer. Our project will address these issues and provides the security for the field using the motion detection sensor and the Raspberry pi. This method of monitoring the crop

will increase the efficiency and productivity of the crop using IOT technologies.

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