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Elephant Monitoring System by Image Processing

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ABSTRACT: This project is employed to guard the farmland from animals by using Raspberry pi. Animals like elephants, monkeys etc...cause serious damage to crops. The techniques that already getting used is ineffective, by creating a system which studies the behavior of the animal. The animal are damaged the crops this detector helps to elephant came means the image will detected by the honeybee sound. After the detection the intimation is shipped.

KEYWORDS: Raspberry pi 3 module, Raspberry pi camera, Voice Recorder Module, Speaker.

I. INTRODUCTION

At the recent time wild animals are very challenge for the farmers through planet. Especially elephants. It causes the financial problem and scarcity to the farmers. To beat this problem we provides a solution during this paper. And also the animals repellent to the field by using irritation noise by speaker.

II. METHODOLOGY

A. RASPBERRY PI CAMERA

It optimizes the previous Pi cameras, and provides a clear and sharp image. The highlight of our module is that the Lens is replaceable.

B. RASPBERRY PI 3 MODULE

It is a Raspberry pi 3 model. Raspberry pi 3 has 1GB RAM. The Raspberry Pi 3 model may be a small, powerful and light-weight ARM based computer.

C. VOICE RECORDER MODULE

Voice Record Module is base on ISD1820, which a multiple-message record device. This module use is extremely easy which you will direct control by push on board and the 16 GB memory card then you easily record, playback and repeat then on.

D. WORKING PROCEDURE

The project is consist of Raspberry pi module, Voice playback module, raspberry pi camera and operating DC Power Supply. In this method the image will clearly detected The Raspberry -pi system is loaded with Raspbian OS and Python packages for Open CV(Computer Vision). Buzzer is directly connected to Raspberry pi 3 boards. The voice is announced by voice playback modules.

E. SYSTEM REQUIEIMENTS

- Raspberry Pi 3
- 16 GB SD Card
- RasPi-Camera
- Buzzer
- AndroidMobile Phone

- Voice playback module
-

F. SOFTWARE

PLATFORM: Debian-Linux kernel

Language: Pytho, php and java .

Packages: Open CV, wiring Pi, Zbar

G. OPEN CV

Open Source Computer Vision is a library of programming functions mainly aimed at real-time computer vision. Originally developed by Intel, it was later supported by Willow Garage. The library is cross-platform and free for use under the open-source license.

Open CV is written in C++ and its primary interface is in C++, but it still retains a less comprehensive though extensive older C interface. There are bindings in Python, Java and MATLAB/OCTAVE. The API for these interfaces can be found in the online documentation Wrappers in other languages such as C#, Perl, Ch, Haskell and Ruby have been developed to encourage adoption by a wider audience. All of the new developments and algorithms in OpenCV are now developed in the C++ interface.

H. PYTHON

Python is an interpreted high for general-purpose programming. Python has a design philosophy. It provides constructs that enable clear programming on both small and large scales. Python features a dynamic type system and automatic memory management. It supports multiple programming paradigms, including object-oriented, imperative, functional and procedural, and has a large and comprehensive standard library.

Python interpreters are available for many operating systems. CPython, the reference implementation of Python, is open source software and has a community-based development model, as do nearly all of Python's other implementations. Python and C Python are managed by the non-profit Python Software Foundation.

I. FLANN MATCHING ALGORITHM

In this project Flann Matching Algorithm is used. The matching is done after identifying the key points and descriptors from both object and scene. Open CV has two matching strategies Brute force matcher and Flann matcher. The Brute force matcher takes one descriptor from scene and it matches with the all descriptor in the object using distance calculation and the closest matched value is returned.

III. EXPEREMENTAL RESULT

Hardware connection before the camera detects the elephant and the apr9600 led is to be in red colour when it's on and if the elephant is not detected.

- It helps in the study of moving patterns of animals. Warning can be given beforehand for the people in the locality to safe guard themselves from the animals, and the forest department takes the needed action once the IOT platform is updated.
- Camera will be upgraded, such that the camera covers the 360 degrees constantly and along with the wild elephants we can detect other animals like wild pigs which is also destroying the farm lands rarely. Various sounds

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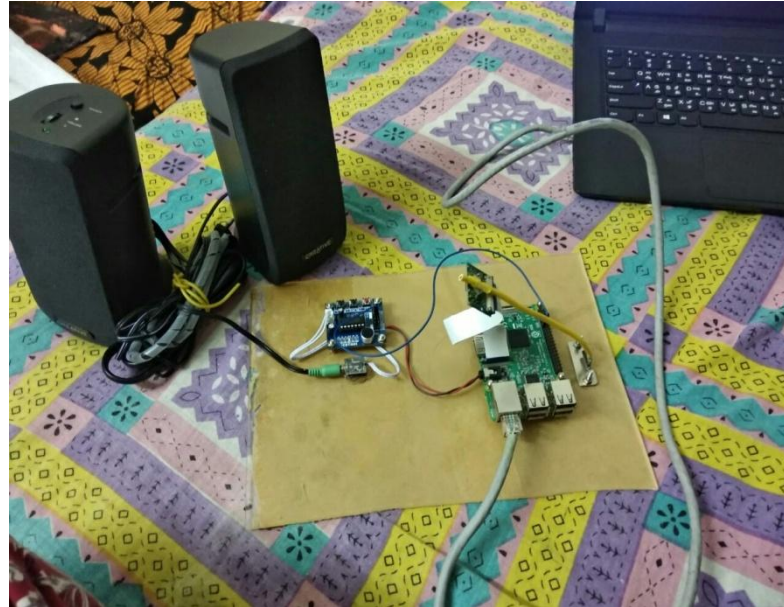


Fig 1: Experimental setup

will be played such that the respective animals are scared off. The focus light and speakers will be updated with the driver motors to change the focus location according to the animal movement to drive them away back to the forest.

IV. CONCLUSION

The problem of damaging crops by animals has become a serious problem in the current time. It requires urgent attention and an efficient solution. The proposed system supported Raspberry pi is found to be more compact, user friendly and fewer complex, which may readily be utilized

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