

EARLY WARNING SYSTEM FROM THREAT OF WILDANIMALS USING RASPBERRYPI

Mrs. M.MALARMATHI,R.GOKULNATH*,S.YUVARAJ*,R.KARTHIKEYAN*

PROFESSOR¹,STUDENT*

DEPARTMENT OF INFORMATION TECHNOLOGY,
SNS COLLEGE OF ENGINEERING,INDIA.

ABSTRACT

In this paper the conservation of crop field has been a main content and a complex issue. The animals from the forest area [PAs] are continuously attacking the crop field over the years and the protection of this crop field has become a main concern. Wildlife intrusion in areas with high human quality is established to be fatal for each folks and animals. The surveillance and tracking of the wild animals are difficult due to their size and nature of movement. Further, distinguishing the species captured from camera may be a important challenge. Thus, this planned system seeks to spot wild associate degreemimals that disturb the human life and therefore the agricultural fields with the help of an intelligent image process algorithmic rule in Raspberry pi. In our methodology, the process followed is the detection of motion in the video frame and identification of the objects in the area descriptor as the local features which describes the unique features of. animal, detects the animal and creates the different sound that irritates the animal and also alerts the authorized person by sending a message to IOT.

Keywords: Arduino UNO Board, Float sensor, Liquid Crystal Display

I. INTRODUCTION

People move towards the globalization, as a result, there is a large area destruction of forest land. Animals those lost their homes come in search to the animals entry to the villages and crop field.To save the crops, people use electrical fences which is highly dangerous for animals to sense leading to loss of life.These factors lead to extinct of endangered animals, also threat to the life of animal population.

II. LITERATURE SURVAY

| Title | Author | Published Year | Drawback |
|--|--|--|---|
| Digital Indication of Fuel Level in Litres in Two Wheelers (2017) | Ultrasonic sensor Flow sensor | Shows fuel level | Not safe in regular life time Costly |
| Modeling of Two Wheeler Vehicle for Fuel Indication in Digital and Accident Detection (2017) | Fuel float sensor Ultrasonic sensor | Shows fuel level in analog mater and detect accident | Not safe due to ultrasonic sensor |

TABLE 1: Literature survey Comparison

III. EXISTING SYSTEM

The existing techniques for the prevention of wild animals entering into the agricultural field are to develop electric barriers, crackers & forced throat water on the boundaries of agricultural area. This techniques will harmful for the wild animals like elephant, pigs, monkeys, etc.

IV. PROPOSED SYSTEM

Using image processing technics In this system the advanced animal, detects the animal and creates the different sound and focus light that irritates the animal and also alerts the authorized person by sending a message.

The components used in the project are listed below

- Raspberry pi 3
- Sd card 8gb
- Web cam
- APR module
- Relay
- Speaker
- Power supply

A. RASBERRY Pi 3

1.4GHz 64-bit quad-core processor, dual-band wireless LAN, Bluetooth four.2/BLE, quicker local area network, and Power-over-Ethernet support (with separate writer HAT)



Fig:1 Raspberry Pi 3

B. SD CARD 8GB

APR33a3 Voice play back provides high quality recording and playback with 11 minutes audio at 8 KHz sampling rate with 16 bit resolution. The aPR33A series C2.x is specially designed for easy key trigger, user can record and playback the message averagely for 1, 2, 4 or 8 voice message(s) by switch, it is appropriate in easy interface or have to be compelled to limit the length of single message. The aPR33A series ar powerful audio processor along side high performance audio analog-to-digital converters (ADCs) and digital-to-analog converters (DACs). The aPR33A series ar a completely integrated answer providing high performance and unique integration with analog input, digital processing and analog output functionality. The aPR33A series incorporates all the practicality needed to perform hard audio/voice applications. High quality audio/voice systems with lower bill-of-material prices will be enforced with the aPR33A series due to its integrated analog information converters and full suite of quality- enhancing options such as sample-rate convertor.

C. WEB CAM

A digital camera may be a video camera that feeds or streams its image in real time to or through a laptop to a electronic network. once "captured" by the pc, the video stream is also saved, viewed or sent on to different networks traveling through systems like the web, associated e-mailed as an attachment. once sent to a far off location, the video stream is also saved, viewed or on sent there. in contrast to associate science camera (which connects victimisation LAN or Wi-Fi), a digital camera is usually connected by a USB cable.

D. APR MODULE

APR33a3 Voice play back provides high quality recording and playback with 11 minutes audio at 8 KHz sampling rate with 16 bit resolution. The aPR33A series C2.x is specially designed for straightforward key trigger, user can record and playback the message averagely for 1, 2, 4 or 8 voice message(s) by switch, it is appropriate in easy interface or have to be compelled to limit the length of single message. The aPR33A series square measure powerful audio processor along side high performance audio analog-to-digital converters (ADCs) and digital-to-analog converters (DACs). The aPR33A series square measure a completely integrated resolution providing high performance and alone integration with analog input, digital processing and analog output functionality. The aPR33A series incorporates all the practicality needed to perform tight audio/voice applications. High quality audio/voice systems with lower bill-of-material prices are often enforced with the aPR33A series attributable to its integrated analog knowledge converters and full suite of quality

E. RELAY

Relay depends on magnetic field generated from the coil so there is power isolation between the coil and the switching pins so coils can be easily powered from Arduino by connecting VCC and GND bins from Arduino kit to the relay module kit after that we choose RPI output pins depending on the number of relays needed in project designed and set these pins to output and make it out high (5 V) to control the coil that allow controlling of switching process.

V. SYSTEM ARCHITECTURE

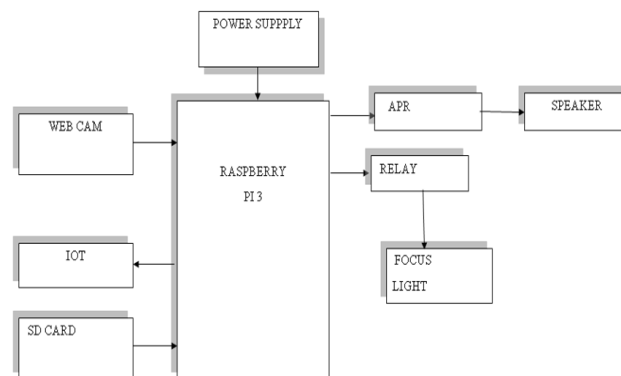


Fig:2 Architecture Diagram

VI. METHODOLOGY

The project is to detect the animal monitoring image processing on Raspberry Pi board and send an Raspberry pi based animal detection system. Our project system can be capture the image and which is used for identifying or comparing the images in the database. Web Camera module: Camera module is interfacing to the raspberry pi module. It is used for captures an image and send captured image to the Raspberry pi module. Raspberry pi module is small computer board. When image taken by the raspberry pi it is compared with database image. After comparing images output is positive/negative .Then it gives commands to way to SMS module is used to sending a message to the authorities, after comparison output is positive or negative.

The audio unit consists of a Raspberry pi APR audio player, memory to store tracks and the speakers. The Raspberry pi will be programmed such that when the camera detects an animal and focus light also turn on, If output is positive then detected then message send a sms to the authority person using way to IOT.

A. ALGORITHM

- i. Image processing algorithm
- ii. Symetric Encryption Algorithm
- iii. Object Tracking Algorithm
- iv. Stereo correspondence algorithm
- v. GPU Accelarated Algorithm
- vi. K match Algorithm

VII. CONCLUSION

Thus, novel technique to detect dangerous wildlife i.e., the elephants, tigers and monkeys in order to prevent Human-wildlife Collision was proposed in the paper.. The main focus of the future work will be to develop a faster method to cover large area of land. With a greater training dataset, the efficiency for the wildlife detection system is likely to increase. The detection and tracking of motion of multiple or groups of animals will also be an area of focus in the future studies.

VIII. REFERENCES

- [1] R. K. Vigneshwar , R.Maheswari “Development of Embedded Based System to Monitor Elephant Intrusion in Forest Border Areas Using Internet of Things” International Journal of Engineering Research. (1 July, 2017) Volume No.5, Issue No.7, pp : 594-598.
- [2] Matthias Zeppelzauer and Angela S. Stoegaer “Establishing the fundamentals for an elephant early warning and monitoring system” IEEE International Conference on Image Processing .(4 September, 2016)
- [3] Isha Dua, Pushkar Shukla, Ankush Mittal” A vision based human - elephant collision detection system” IEEE International Conference on Image Processing. (25 Febraury,2016)pp:225-229
- [4] Sheela.S, Shivaram. K., Chaitra. U, Kshama. P, Sneha. K, Supriya. K” Low Cost Alert System for Monitoring the Wildlife from Entering the Human Populated Areas Using IOT Devices” International
- [5] Journal of Innovative Research in Science, Engineering and Technology. (10 May,2016) Vol. 5, Special Issue 10, May 2016 .