

WILD LIFE DETECTION USING IOT AND ANDROID

Prof. Dinesh Ghorpade¹, Ajinkya Ravindra Pawar², Ketan Ramnath Kawade³, Devesh Khemchand Patil⁴,
Nikhil Satyanand Kasab⁵, Prasad Ravindra Mali⁶,

Assistant Professor¹, BE Student^{2,3,4,5,6}

^{1,2,3,4,5,6}Department of Information Technology, Sir Visvesvaraya Institute of Technology Nashik, Maharashtra

Abstract - Interference of wildlife into habitat without prior knowledge is known to be destructive for both human beings and animals. Human interactions with wildlife are defining experience of human existence. These interactions can be positive or negative. The main aim of the proposed system is to detect wild animals. This system uses long-range IR sensors and ESP8266 Wi-Fi module to detect the movement of the animal and send signal to the controller. This signal is transmitted to GSM, which is an alert to farmers and forest department immediately. This system also uses RFID (Radiofrequency and Identification) so if the animal is near to the sensors the id will be known. The proposed system endeavors to prevent casualties that occur in areas having high human wild animals interaction..

Keywords: *Mobile application, Student attendance and mark management system, API,, Paperless Office, Attendance Management.*

1. INTRODUCTION

Animal attacks on human are one of the major threats. Animal raiding is becoming one of the most conflicts antagonizing human wildlife relationships. The current system used to counter this problem includes the use of electrified welded mesh fences (usually 30cm in the ground), chemicals or organic substances and gas cannons. Other traditional methods applied by farmers include the use of Hellikites, Ballons, Shot/Gas guns, String stone, etc. These solutions are often cruel and ineffective. They also require a vast amount of installation and maintenance cost and some of the methods have environmental pollution effect on both humans and animals. On the other hand, the chemical products used to prevent these animal attacks have an application cost per hectare and their effectiveness is dependent on weather condition, as rain may cause a dilution effect. Sensor networks express a substantial improvement over traditional invasive methods of monitoring. This proposed system is based on an animal friendly IR sensor generator, which does not produce physical or biological harm to the animals nor sounds audible to humans. In this work, we present the coordination among heterogeneous sensors and actuators interacting with the cloud to provide an enabling platform for new services in this domain. In particular in the peripheral part, we adopted wireless technologies such as long range IR sensors, WiFi module etc.,

cooperating with the data center by an advanced IoT gateway. Another important feature that we had to consider is the lifespan of the devices before deployment. As a result, we selected low energy consuming nodes equipped with batteries and solar panels for energy harvesting in order to achieve this goal.

2. LITERATURE REVIEW

Kiran et al 2018[3] proposed IOT- based animal intrusion detection system. PIR (Passive infrared sensor) detects the movement and triggers the camera to take the animal image, once the animal is detected by the sensor the signal is passed to the camera via a microcontroller Arduino Uno. The image is classified with the sample images which is stored in the database. When the wild animal is identified as elephant the bright light emitted is used and if leopard is identified then a loud noise is used to divert it. Consequently, alert SMS is sent to the forest officials and the landowners using GSM module. Santhoshi et al 2018[4]. proposed intrusion recognition in farmland through a wireless sensor network (WSN) technology. The motion sensor is placed at various locations to sense the movement and communicate to the organizer via Radio frequency transceiver. The detection raise then the organizer sends an alert call to the farm owner mobile through the Global System for Mobile (GSM) module. An Arduino board is fixed near the centralized sensor and the GSM module will be the interface along with buzzers and RFID transmitter. To differentiate authorized and unauthorized entries in farmland Radio-frequency identification (RFID) tags are used. Sambhaji et al 2019[5] proposed an IOT based harmful animal early warning system. At first, stored the harmful animal database in the computer system or cloud which is already connected to the IoT model with various sensors. Images are captured with a web camera only if any movement of animal found in the school area, the computer system will compare the moving image with stored database image and triggers the Arduino Uno for the programming process. It buzzes the alarm also send SMS on a user's mobile phone after the animal is detected. Sheela et al 2016[6] proposed low cost alert system to monitor animals using IOT devices. The PIR sensor tower consists of Raspberry Pi module which is connected to a USB camera to capture images at the time of motion is sensed and sends images via a web server

using internet. For image processing Open CV is installed on raspberry pi also in this paper, to reduce the cost of electric lines solar power is fixed in each sensor tower the solar panel will charges the battery from the sunlight and provides power to the sensor tower. This provides power consumption low and stores battery power even at night

3. PROBLEM STATEMENT

Farm raiding by wild animals close to an area of forest is a serious problem. The demand of Internet of Things (IOT) in farm sectors, which has drawn significant research attention. This system presents the development of Internet of Things application for farm work reproduction to prevent animal intrusions in the farm field. A monitoring system is provided to prevent attack on humans in Agriculture from wild animal attacks

4. OBJECTIVES

The objectives of the system are

1. To provide protection to farmworkers from the attacks of the wild animals and thus minimizing the probable loss to the farmer.
2. To detect intrusion around the field.
3. To identification of the intruder and classifying them using long Range infrared sensor. Taking suitable action based on the type of the intruder.
4. To send notification to farm owner and forest official using notification
5. To provide protection from the attacks of the wild animals and thus minimizing the probable loss to the farmer.

5. EXISTING SYSTEM

In Existing method the indication is available in the system but it send the message only to the forest officer not to the living people in the farmland. hence such constant supervision is a thing of the past with our smart protection systems, which are capable of identifying and taking the required actions themselves without any human intervention.

6. PROPOSED SYSTEM

In the proposed system, the entire process done by using long range IR sensor and it consist of three stages for animal repellent. We are using Radio Frequency Identification for detecting the animal enter into the farm land so it as multi usage like detection, counting animals in the forest and also track the animals using GPS and it is cost economical. In this method the alert message not only sent to the forest officer it also send the message to

the living people in the farmland by using notification. If the animal reaches the particular place the RFID Reader reads the And the intimation of detected animals send through the SMS by notification modem the repellent the animal to the forest by preventing intrusion in farmland using buzzer..

8. IMPLEMENTATION

Functioning of IOT for wildlife monitoring:

1. Identification
2. Mobile Access Point (MAP)
3. Monitoring Device
4. Wildlife tracking
5. Output

11. APPLICATION AREAS & ADVANTAGES

1. Museums
2. Home
3. Office security
4. Jeweler shops
5. Banks

ADVANTAGES

1. Highly-flexible
2. Fit For get System
3. No need of human effort
4. High security is provided

CONCLUSION

This project has resulted workers safety from wild animals has become a major social problem in the current time. It requires urgent attention and an effective solution. Thus this system carries a great social relevance as it aims to address this problem. The proposed system based on infrared sensor sensor is found to be more compact, user friendly and less complex, which can readily be used in order to perform. Several tedious and repetitive tasks. In this system the process is fully automated and it does not cause any hurt to animal during repellent. Futures cope in this system is to detect the location of the animals by using RFID injector and GPS.

REFERENCES

- [1] Q. Li, R. Gravina, Y. Li, S. H. Alsamhi, F. Sun, and G. Fortino, "Multi-user activity recognition: Challenges and opportunities," Inform. Fusion, vol.63, pp. 121-135, Nov. 2020.
- [2] Z. Qin, Y. Zhang, S. Meng, Z. Qin, and K.-K. Choo,

“Imaging and fusing time series for wearable sensor-based human activity recognition,” Informa.Fusion, vol. 53, pp. 80-87, Jan. 2020

[3] Divya, Usha Kiran, Praveen M, “IOT- Based Wild Animal Intrusion Detection System”, “International Journal on Recent and Innovation Trends in Computing and Communication” ISSN: 2321-8169, Volume: 6, Issue: 7, pp: 06 – 08, 2018.

[4] Santhoshi K. Jai, S. Bhavan, “Intruder recognition in a farm through wireless sensor network”, “International Journal of Advance Research, Ideas and Innovations in Technology”, ISSN: 2454-132X, Volume 4, Issue 3, pp : 667 – 669, 2018.

[5] Sahane Pradnya Sambhaji, Salunke Nikita Sanjiv, Shirsath Vitthal Somnath , Shukla Shreyas Sanjay , Prof. A. R. Panhalka, “Early Warning System for Detection of Harmful Animals using IOT” , “International Journal of Advance Research and Innovative ideas”, ISSN(O)-2395-4396, Vol-5 Issue-3, 2019.

[6] Sheela.S, Shivaram. K. R, Chaitra. U, Kshama. P, Sneha. K.G, Supriya. K.S, “Low Cost Alert System for Monitoring the Wildlife from Entering the Human Populated Areas Using IOT Devices”, “International Journal of Innovative Research in Science, Engineering and Technology”, ISSN : 2319-8753, Vol. 5, Special Issue 10, 2016..

[7] Danesh Tarapore, Jon Timmis, Anders Lyhne Christensen. “Fault Detection in a Swarm of Physical Robots Based on Behavioral Outlier Detection”. IEEE, vol. 35, Aug.2019

[8. Pavan C, Dr. B. Sivakumar. “Wi-Fi Robot for Video Monitoring and Surveillance system. International journal of Scientific & Engineering Research. Vol 3. Issue 8. Aug – 2018