# R-CNN based wild animals conservation with safeguard farming

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**ABSTRACT**

The main aim of our project is to protect wild animal conservation from electric shock caused in electric fence as well as strengthen the crop protection. RCNN is a type of machine learning model that is used for computer vision tasks .system is designed to detect the wild animals in real time basis and raising a warning before hitting the electric fence. In this project we use solar infrared motion sensor to function the raising alarm with different sound system. Wild animals disturbing near by the fencing will get diverted based on the sound arising with flicker flame produce the fire effect to make scare the animals during night time.

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**Keywords**—safe farming;strengthen farming,wild conservation,R-CNN farming

## I. INTRODUCTION

The electric fence system can protect crops of farmers from wild animals but the number count of moralities increases due to electric shock reality of fence use and raises many concerns. This is the challenging problem across the globe.The Modification of electric fence system to the advanced level will provide the tremendous change in the model presents to protect endanger for wild conservation.

## II. RISK IN ELECTROCUTION

At the point when a suitable electric flow is gone through the heart it goes into a state known as ventricular fibrillation. This implies that the heart muscles strands contract in a quick, clumsy way rather than in a customary, facilitated way; blood circulation stops and, if this state persists, death will soon occur. At the point when a creature is shocked it becomes unbending with slight body quakes and afterward gradually relaxes with no further movement[1]. Electrocution is painful, so it is fundamental that creatures are stunned before it is done.

Figure 1: Electrocution on distribution power lines

## III. REMOVING ILLEGAL FENCES

Most of deaths occurred because of shocks coming from broken electric lines. Indeed, even the fences that have been gotten up in a position produce the creatures end ending their lives. The vast majority of the electric fences are working without the information on Electrical Inspectorate[7]. Deaths because of electric shock can be forestalled by setting up an electric fence energizer However, without this, 230 volt power will be communicated straightforwardly to the fence killing animals. The illegal power fences and set up uninsulated wire perimeters edges around their farm, and charge them utilizing their legal meter connections. Delicate footed creatures like tigers, bears, and leopards face instant death after coming in contact with them[11,12].

Figure 2: Illegal Fence identification

## IV. MATERIALS AND METHODS

Faster R-CNN is a deep convolutional network utilized for object identification, that appears to the client as a solitary, start to finish, bound together organization. Faster R-CNN shares computations across all calculations for each proposal independently.[6,7] This is finished by utilizing the new ROI Pooling layer, which makes Fast R-CNN faster than R-CNN.It utilizes a basic back-propagation calculation which is basically the same as max-pooling gradient calculation with the special case that pooling regions overlap and in this way a cell can have gradients pumping in from multiple regions.

- Image capture: Input image will be captured through camera and feed to the system for detection.
- Detection: Wild animal detection is done through the Google Vision-api through the cloud based server. classification and identification according to CNN algorithm [2].
- Secure Alert System: System hardware consist set of alarm with different sound like 129db dog barking, gunshot ,strobe light and electric fence covered will be activated on successful detection of animal and will be active [3].
- Shape Estimation: Wild animal is detected, it is segmented and the filtering task takes place. The main objective of this filtering is to sequentially exclude groups of animals which are not wild, during feature detection.[4,5]
- Size Detection: After shape estimation, the system access database to retrieve the matches shapes .
- Evaluation: It result the perfect Wild animal detection.

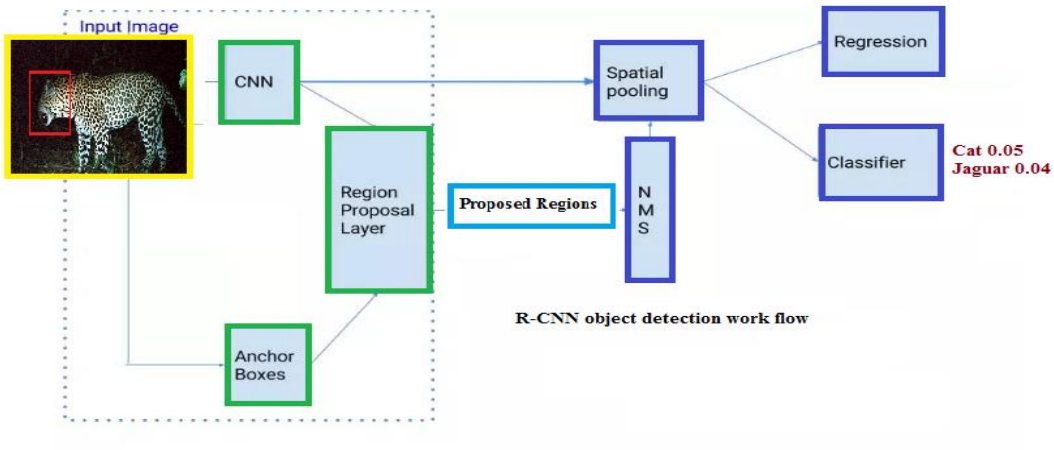


Figure 3: Object Detection (R-CNN) Data Flow diagram of the system

Latest Designed Flickering Flame glow effect with a Safe alternative as Real Flickering Flames Design [10].The solar post light with fully automatic photosensitive design including waterproof and heat resistant. Flickering Solar Lights Outdoor having facilities such as Energy saver , Efficient and Simple disassembly. Robust Glass Material with Shock resistance with Rough Handling and Auto On/off From day to night time[8,9].

Figure 4: Wild animals detection with alarm warning with flicker flame lights

**Table 1: R-CNN series speed**

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|---|---|
| Test time per image | 50 sec |
| Speed up | 1x |
| Map (voc2007) | 66.0 |

## V. RESULTS

Python language is utilized for wild creature recognition. We have involved tensor Flow library for recognition, additionally utilized Google vision library. A framework that involves the camera as security substance for catching pictures when item is distinguished which will be utilized for object identification and recognition for process. The experimental arrangement covers farm with LED fences connected with Arduino.

## VI. CONCLUSION

We have presented a R-CNN based the animal detection and recognition for wild animal conservation . An efficient way to detect utilization of computer vision systems. With the arrival of deep learning techniques, the accuracy increased extremely. The project aims to safe guard the wild animal conservation and alerting for crop protection for farmers with the goal of achieving high precision with a real-time performance. The fence is electrified ,when any wild animal approaches the fence the alarm is set active state and image is captured and sent to forest officers, farmers to make alert also wild animals get diverted to various places .

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