R-CNN based wild animals conservation with safeguard farming

Mr. S.Sriram
Department of Computer Science and Engineering
Bannari Amman Institute of Technology
Sathyamangalam,Tamil Nadu,India.
srsriramengg1@gmail.com

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 body of animal into a state called as ventricular fibrillation. This react to cardiac arrest happen that implies heart stop beating and immediately end the pumping blood [1].Affected wild animal get collapse and become no movement of action ,it leads to death. Electrocution affects the animals life in endanger .This may be caused by faulty electrical circuit connections, lightning fallen in the electrical line.

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

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.

Step1 : Input signal is feed into camera get optimize and pass to the system for detection.
Step2 : Object is detected through the Google Vision-Application Programming Interface through the cloud based server. Identification and classification process based on CNN algorithm.[2]
Step3 : System hardware contains an alert option with different sound like 129db dog barking, gunshot ,strobe light [3].
Step 4: In Shape Estimation mode will be ready to detect wild animal and filtering task started.[4,5]
Step 5: Next to shape estimation the method is size detection ,it works comparing objects for best matches
Step 6: Finally Evaluation phase that results perfect wild animal detection.
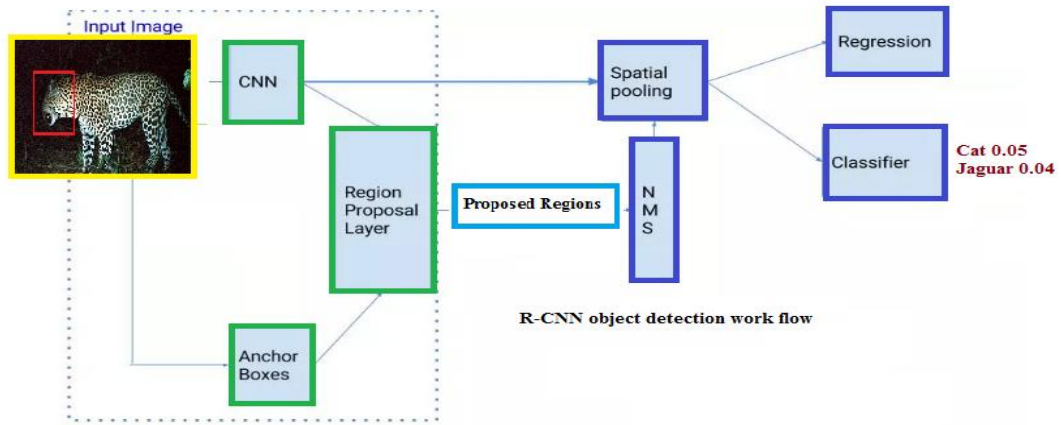
Figure 3: Object Detection (R-CNN) Data Flow diagram of the system

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

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

V. RESULTS

The wild creature recognition process is done using Phython language for computation and major utilization of tensor flow library for recognition with addition to Google vision library. The camera detect object to activate security substance and 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 . The best way to   detect utilization   of computer vision systems including deep learning techniques, the accuracy increased extremely. The project aims to safe guard the wild animal conservation and secure for crop protection for farmers with the goal of achieving high precision with a real-time performance. The fence is electrified ,when any animal approaches the fence the alarm is raised 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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