

A Survey on Algorithms on Animal Detection

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Abstract:- Animal attack on human is a very serious issue in urban areas near forests. Animal detection plays an important role in day to day life due to its impact on the human life directly or indirectly. In the area like an airport where the presence of any kind of animal is strictly restricted, animal detection tool can play an important role in such areas. Presence of wild animal near to the field or residential area, can be make harm to the human or field crops, here also animal detection or warning system can have important role for safety purpose. Application of this detection system in forests can help in counting of animal and safety of wild animal and human. Animal and vehicle collision is also a very important aspect in development in this direction, such problem serious for the life of human, wildlife deaths and economic losses. To address these serious challenges, experimental area can be equipped with this smart animal detection system (ADS) able to recognize dangerous animals (e.g., lion, elk, moose and cow), which passed from the scanning area and warn the people about the imminent accident. Image processing tools can help to develop the indication or warning system.

Keywords:- Animal Detection using Digital Image Processing, Animal Detection using Matlab, Animal Detection Algorithms, Animal Detection Code

I. INTRODUCTION

In image processing an input image is contributed for data and a number of mathematical processes are implemented on the data and the result of these operations will be desired results in the form of image or numeric tables or graphs [1].

These three basic steps are included in the Image processing:

- Image accretion tools can be used for constructing the Image.
- Considering and employing the image.
- An altered image can be generated as an output or reports/data that is based on image analysis.

1.1.1 Image Types

There are various type of images, few of them are used in this work:

- i) Binary Image,
- ii) gray-scale Image,
- iii) Color Image,
- iv) Multispectral Image.



Historically, certain computer programs were written using only two digits rather than four to define the applicable year. Accordingly, the company's software may recognize a date using "00" as 1900 rather than the year 2000.

Figure 1.1: Binary type of image. (a) Object marking. (b) Text page used in OCR applications



Figure 1.2: Examples of gray-scale images

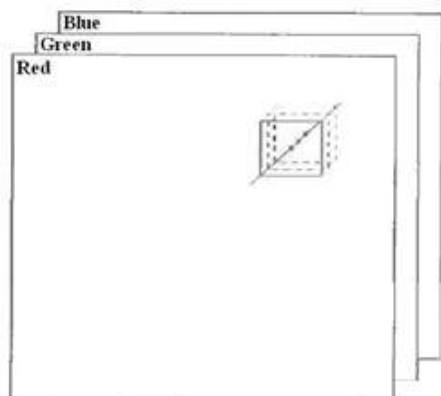


Figure 1.3: A typical RGB color image representation

1.2 Process to Detect Animal from an image

Image acquisition is the initial stage of the vision system. First, data for input is selected from the test system, various image processing method can be applied to the image to perform the different vision tasks required today.



Fig1.5: Foreground image



Figure1.6: Background Image

II. LITERATURE SURVEY

This survey included various techniques for animal detection. Although the systems are known for decades, there are many active research works on the topic.

2.1 EXISTING DIGITAL IMAGE PROCESSING

Digital image processing is gaining large interest because of it is useful for real time application in real word. Many digital operations are performed with the digital system developed by the Digital Image Processing.

An image can be represented in this form like 2D signals or combination of pixels. It is defined by the mathematical function $image(x,y)$ where x and y are the main two co-ordinates. The value of $image(x,y)$ at any point in picture. The value of $image(x,y)$ at any point in picture. The value of $image(x,y)$ at any point in picture.

One of the primary employments of cutting edge pictures was in the day by day paper industry, when pictures were first sent by submarine connection among London and New York. Introduction of the Bartlane connect picture transmission structure in the mid 1920s diminished the time required to transport a photograph over the Atlantic from more than seven days to under three hours. Specific printing gear coded pictures for connection transmission and a while later imitated them at the not as much as attractive end. Figure 1.1 was transmitted thusly and imitated on a communicate printer fitted with typefaces emulating a halftone plan.

The early Bartlane frameworks were equipped for coding images in five particular levels of dark. This ability was expanded to 15 levels in 1929. Figure 2.3 is ordinary of the sort of images that could be acquired utilizing the 15-tone gear. Amid this period, presentation of a framework for building up a film plate by means of light bars that were regulated by the coded image tape enhanced the proliferation procedure extensively.

Table 2.1: Different method for background subtraction

| Ref. | Method | Database Require | Accuracy output | Training Time (sec)* | Computation time (sec) |
|---------|----------------------------------|------------------|-----------------|----------------------|------------------------|
| [45-46] | Basic methods, mean and variance | - | Low | - | ≈ 1 |
| [47-49] | Fuzzy based methods | Low | Medium | ≈ 5 | ≈ 1 |

| | | | | | |
|---------|--|------|------|------|------|
| [50-51] | Statistical methods using one gaussian | High | High | ≈ 20 | ≈ 1 |
| [52] | Statistical methods using color and texture features | High | Low | ≈ 80 | ≈ 30 |
| [53-54] | Neural and neuro-fuzzy methods | High | High | ≈ 60 | ≈ 1 |

‘*’ depends on the data base for training

Problem Statement

Animals can be harmful in residential and it increase the risk to the wild life and wild animals are being accidentally increasing due to the routine farming operation during the farming time. So it is necessary to work and design a system in which animal can detect animal. There are many system are already designed. This approach tries to find out an automatic animal detection system for increasing the accuracy. There is a scope of the designing the system with cost effective and fast working because this type of application will be used by the ordinary person.

III. CONCLUSION

Animal detection plays an important role in real life applications problem handling. These animal detection system and warning system have used to detect or indicate particular animal for an objective. For our problem, we have used this system for protection purpose.

In this work, background subtraction method is used for detecting the animal. For implementation of this proposed method we have used regionprops algorithm. This particular technique is used to separate the object from the image. Whereas, object shaping is identified using blob method. This method is general and fastest technique in machine vision used for identifying the image region.

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