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RESEARCH ARTICLE

Motion Detection of Webcam Using Frame Differencing Method

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ABSTRACT:
It is the capability of humans and as well as vehicles to automatically detect object level motion that results into collision less navigation and also provides sense of situation. This paper presents a technique for secure object level motion detection which yields more accurate results. To achieve this, python code has been used along with various machine learning libraries. The detection algorithm uses the advantage of background subtraction and fed in data to detect even the slightest movement this system makes use of a webcam to scan a premise and detect movement of any sort; on the recognition of any activity it immediately sends an alert message to the owner of the system via mail. Any person requiring a surveillance system can use it.

KEYWORDS: *Motion Detection, OpenCV, Background Subtraction, SMTP Library.*

INTRODUCTION:
Formally, Motion Detection refers to the recognition of any kind of activity in the vicinity of an installed security system. In other words, a camera is used to capture any sort of activity in a susceptible environment. Motion detection is usually a software-based monitoring algorithm which, when motion is detected signals the surveillance camera to begin capturing the event, also called activity recognition. Though, an advanced motion detecting security system can analyse the kind of motion and verify it to check if it deserves an alert. This paper on the other hand proposes a system that can detect even the slightest motion and alert the owner of the security system regardless of the severity, it has aimed to create a highly sensitive system.

OpenCV: Open Source Computer Vision, OpenCV in short, is a library that is primarily used for real-time computer vision. It aims at providing computer vision for machines to decipher an image as humans naturally do which basically makes it a target when it comes to the concept of Machine Learning and Artificial Intelligence. Open CV was originally developed by Intel and later supported by others. The library is cross-platform and permitted for use under the open-source license. It fascinatingly also supports deep learning frameworks, like TensorFlow, Torch/PyTorch and Caffe, again a field of vast exploration [1]. One of the disadvantages of using OpenCV is that it can only be deployed locally, and extending it to the web or having a server-side execution is a challenge that does not need immediate dealing.

LITERATURE REVIEW:
As technology has been on the up-rise people have started taking the view of reducing the trouble of having to install or recruit security in the system which they consider susceptible. Security systems which can detect any sort of activity, is the need of the hour. For one, it reduces the stress of the owner; another reason could be to reduce the burden of security guards also, if a person has trust issues that keep her/him awake, this system is certain to help her/him rest well. A security system that can motion detection is not a brand-new concept. In the past many project of similar kind have been constructed and been used efficiently.