IDENTIFYING ABNORMALITY DETECTION FROM SURVEILLANCE CAMERA AND SECURITY ALERT BASED ON DEEPLEARNING

CCTV is rarely used to PREVENT theft - that would usually require someone watching the video feeds constantly, which is impractical for the rare times it actually happens. Recorded video is more often used to aid in investigation and prosecution. Sometimes the deterrent factor can prevent theft - cameras are made obvious, and many stores will have "customer awareness" monitors at entrances, showing people that they're on camera. If potential thieves are made VERY aware that they're being recorded, they'll sometimes move on to somewhere else. In this project mainly focus the security of the shop at night. If an incident occurs at night in a shop, people came in from outside (Thief), incase product may fall and if any changes occur (Abnormality will be notified by the object by which the abnormality is detected), It is advisable to notify the appropriate security or higher authority. And the shop is running cctv camera at 24 hour in this project shows the abnormality in separate video. Abnormality is found in Background Subtraction Algorithm. Machine learning can be used to find out what causes.In this project proposes the security of the shop at night. If an incident occurs at night in a shop, people came in from outside (Thief), incase product may fall and if any changes occur (Abnormality will be notified by the object by which the abnormality is detected), It is advisable to notify the appropriate security or higher authority. And the shop is running cctv camera at 24 hour.in this project shows the abnormality in separate video. Abnormality is found in Background Subtraction Algorithm. Machine learning can be used to find out what causes Abnormality.

Basic functionalities: Deep Learning:

Deep learning is a subset of machine learning, which is essentially a neural network with three or more layers. These neural networks attempt to simulate the behavior of the human brain—albeit far from matching its ability—allowing it to “learn” from large amounts of data. While a neural network with a single layer can still make approximate predictions, additional hidden layers can help to

optimize and refine for accuracy. Deep learning neural networks, or artificial neural networks, attempts to mimic the human brain through a combination of datainputs, weights, and bias. These elements work together to accurately recognize, classify, and describe objects within the data. Deep neural networks consist of multiple layers of interconnected nodes, each building upon the previous layer to refine and optimize the prediction or categorization. This progression of computations through the network is called forward propagation. The input and output layers of a deep neural network are called visible layers. The input layer is where the deep learning model ingests the data for processing, and the output layer is where the final prediction or classification is made. Another process called backpropagation uses algorithms, like gradient descent, to calculate errors in predictions and then adjusts the weights and biases of the function by moving backwards through the layers in an effort to train the model. Together, forward propagation and backpropagation allow a neural network to make predictions and correct for any errors accordingly. Over time, the algorithm becomes gradually more accurate.

Background subtraction algorithm –

The background subtraction method (BSM) is one of the most popular approaches to detecting objects. This algorithm works by comparing moving parts of a video to a background image and foreground image.This method is used to find foreground objects by isolating them while comparing them to the frame where no objects are present; it will find the differences between them and create a distance matrix. Basically what it does is compare the difference in the value of two frames, one frame without an object and the other with objects to count, with the threshold value. The threshold value is predefined by using the first few frames of the video. Hence if the difference in the value of two frames is greater than the preset threshold value, the result is marked as a moving object detected.The background subtraction method considers the input video frame as “I” is made of static background “B,” which does not change throughout the scene, in front of which an object is moving and observed.

Step1 :initialize frame as background [B(x,y,t)]

Step2 : inputframe [I(x,y,t)]

Step3 : if difference (I,B)>Threshold value Then Return(foreground object exist) Else Return (no

foreground object exist)