

DEPARTMENT OF COMPUTER APPLICATIONS
20MCA246 – MAIN PROJECT

PRO FORMA FOR THE APPROVAL OF THE FOURTH SEMESTER MAIN PROJECT

(Note: All entries of the pro forma for approval should be filled up with appropriate and complete information. Incomplete Pro forma of approval in any respect will be rejected.)

Main Project Proposal No : _____
(Filled by the Department)

Academic Year : 2021- 22

Year of Admission : 2020

1. Title of the Project : IDENTIFYING ABNORMALITY DETECTION FROM SURVEILLANCE
CAMERA AND SECURITY ALERT BASED ON DEEPLARNING

2. Name of the Guide : FEBIN AZIZ

3. Student Details (in BLOCK LETTERS)

Name	Register Number	Signature
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Date: 16/04/2022

Approval Status : Approved / Not Approved

Signature of
Committee Members }

Comments of the Guide

Dated Signature

Initial Submission :

First Review :

Second Review :

Comments of the Project Coordinator

Dated Signature

Initial Submission:

First Review

Second Review

Final Comments :

Dated Signature of HOD

IDENTIFYING ABNORMALITY DETECTION FROM SURVEILLANCE CAMERA AND SECURITY
ALERT BASED ON DEEPLARNING
ANJALI TP

Introduction and Objectives:

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.

Problem Definition:

EXISTING SYSTEM

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.

PROPOSED SYSTEM

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:

Functional Module

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 data inputs, 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)

User module

- Admin
- Security

1 Admin

- Login
- Add and Manage Security
- Assign Duty
- View Daily Report

2 Security

- Login
- View duty
- Add and manage daily report
- View Notification

HARDWARE AND SOFTWARE REQUIREMENTS:

HARDWARE REQUIREMENTS

The selection of hardware is very important in the existence and proper working of any software. Then selection hardware, the size and capacity requirements are also important.

- Processor - Intel x86
- Speed - 1.1 GHz
- RAM - 700 MB (min)
- Hard Disk - 150 MB
- Key Board - Standard Windows Keyboard
- Mouse - Two or Three Button Mouse
- Monitor - SVG

SOFTWARE REQUIREMENTS

One of the most difficult tasks is selecting software for the system, once the system requirements is found out then we have to determine whether a particular software package fits for those system requirements. The application requirement:

- Operating System - Windows 7 or Above, Android
- Technology - Python, Java • Backend – MySQL
- Platform used - JetBrains, PyCharm, Android Studio
- Web Browser - Google Chrome, Fire fox, Microsoft Edge
- Front End - HTML, CSS, JAVASCRIPT • Frame work - Flask