

# **REAL – TIME OBJECT DETECTION USING MATLAB AND WEBCAM**

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## **ABSTRACT**

Webcam is normally used for live video for conference calls or uploading the image to the social network. It consists of capturing and recording images. However, the use of webcam is seldom used for recognition of an object. In this project, a USB Webcam are considered as Close Circuit Television (CCTV) and the objectives of this work is to help a person to detect and monitor their safety as the USB Webcam act as a CCTV. The scope of study of this project is to identify and differentiate the type of object from the USB Webcam. MATLAB programing is utilized to interface the webcam with the MATLAB software to encoded and distinguish the type of an object. A USB webcam are employed to differentiate and capture the object movement. The functionality of the hardware and software are tested when there is movement as the camera captured the images. The result of this project is that a person can acknowledge the object ahead either it is a humans or an animal.

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## Chapter 1

### INTRODUCTION

#### 1.1 OVERVIEW OF STUDY

The classification of objects in complex, natural scenes is considered a difficult task [1]. The objects recognition and detection is a process for tracking and capturing [2]. The detection of moving objects and motion-based tracking are important for activity such as image recognition, traffic monitoring, and automotive safety. In this project, it will approach 3 different things which is extract features using Bags-of-words, train and compare the classifiers and classify streaming video from a webcam.

Hence, in this work the detection and recognition concept will employ the USB webcam itself. The USB webcam will record the image when there is motion in a specific area. Additionally, the detection and differentiation of object will be done. The program is using image processing and computer vision system toolbox using the classification learner [2] [3]. The object detection and tracking are use subtraction background algorithm concept. Furthermore, the image processing toolbox is used for the object analysis when USB webcam captured the image. The image and the identification of the object is examined by Classification Learner using MATLAB software and the recognition and identification image is examined using Computer Vision System Toolbox.

Segmentation seemly refer to the process of partitioning a digital image into multiple segment (sets of pixels) according to computer vision. To change the image into something more thoughtful is the target of this segmentation. Image segmentation is formally use to detect objects and boundaries [4]. The result from the image