1. INTRODUCTION

1.1 CONTEXT

The target of this project is to create a program able to process video information from a webcam (i.e.the program must identify a moving object and track its position). Videos can be treated as a stack of pictures called frames. different frames(pictures) will be compared to the first frame which should be static(No movements initially). We compare two images by comparing the intensity value of each pixel (a pixel's intensity is its **brightness**). In python it can be done easily

1.2 SPECIFICATIONS

This project requires the installation of Python3 and the Pandas and OpenCV libraries.

For learning how to begin this assignment I read articles and watched videos on how to work in python and which predefined functions are useful and how they work.

1.3 Objectives

The main objective for the code to work is to create a way to discern an object from its background.

From what I have learned, I came up with the following small objectives the program has to fulfil when the code is ran:

- 4 new windows will be created
- The first window created is the Gray Frame : In Gray frame the image is a bit blur and in grayscale. (In grey pictures there is only one intensity value whereas in RGB(Red, Green and Blue) images there are three intensity values. So it would be easy to calculate the intensity difference in grayscale.)
- Difference Frame **:** Difference frame shows the difference of intensities of the first frame to the current frame.
- Threshold Frame : If the intensity difference for a particular pixel is more than 30(in my case) then that pixel will be white and if the difference is less than 30 that pixel will be black
- Colour Frame : In this frame, you can see the colour images in the colour frame along with green contour around the moving objects.