

Mini-Project Title:

Car Detection System

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Short description (8 to 10 sentences):

Vehicle object detection using digital image processing is crucial for setting up monitoring systems or as an alternate way to gather statistics for effective traffic engineering decisions. First, the visual shape of the car was presented using a Haar cascade feature, and the machine learning technique was also utilized to create a powerful classifier by integrating particular classifier into a cascade filter to swiftly remove background areas of an image. Then it is able to detect cars and give marker. We test our project on three random videos taken from online sources. Car detection system gives us accuracy of more than 90%.

What is Haar cascade?

No matter where they are in the image or how big they are, objects can be found using the algorithm known as the Haar cascade. This algorithm can operate in real-time and is not overly complex.

Software / Packages requirements:

1. We used Visual studio as Software
2. We used python Programming Language
3. Then following packages are used for project
 - OpenCv (cv2)
 - Numpy (np)
 - Time
 - tkinter
4. We used haar-cascade file in format of .xml .

Step by Step instructions:

a. Generating the user-interface

1. Create Body classifier(car classifier)
2. Initiate video capture for video file
3. Loop the following steps once video is successfully loaded
 - Read first frame.
 - Pass frame to car classifier.
 - Make boundary boxes for any car identified.
4. We add tkinter library to make as simple Interface.

b. Using the user-interface

1. Open the code file of car detection system.
2. Simple, Run the code.
3. User Interference pop up, Click the "pick video file".
4. Then Select video anywhere from the computer.
5. Video screen pops up with car detection marking.

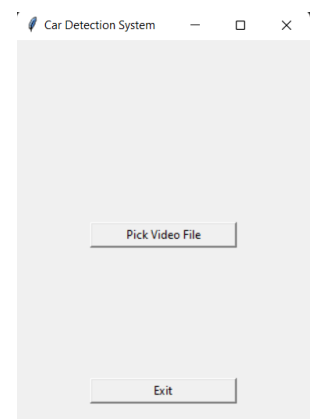


Figure 1 Car detection system interface