IMPROVEMENT REAL-TIME DETECTION OF MOVING VEHICLE IN A DYNAMIC SCENE USING SHADOW REMOVAL METHOD

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4. Enhanced Research Title and Objectives

Original Research Title
Real-Time Recognition of Moving Objects in a Dynamic Scenerio using Self-Adaptive Kalman Background Method.

Enhanced Research Title
Improvement Real-Time Detection of Moving Vehicle in a Dynamic Scene using Shadow Removal Method.

Original Objectives as Proposed:

1. To recognise the real-time moving objects and then classify the type of the object .
2. To reduce the storage consumption.
3. To reduce the processing time.

Improved/Enhanced Objectives:

1. To develop a real time system for moving vehicle detection.
2. To improve the accuracy of vehicle detection.

5. Report

5.1 Proposed Executive Summary

Identifying moving object from a video sequence is a fundamental and critical task in video surveillance, traffic monitoring and analysis, human detection and tracking and gesture recognition in human-machine interface. A common approach is to perform background subtraction, which identifies moving objects from the portion of a video frame that differs significantly form a background model. There are many challenges in developing a good background subtraction algorithm. First, it must robust against changes in illumination. Second, it should avoid detecting non-stationary background objects such as swinging leaves, rain, snow and shadow cast by moving objects. Finally, its internal background model should react quickly to changes in background such as starting and stopping vehicle. There are four major steps in a background subtraction algorithm, which are pre-processing, background modeling, foreground detection, and data validation. Pre-processing consists of a collection of simple image processing tasks that change the raw input video into a format that can be processed by subsequent steps. Background modeling uses the new video frame to calculate and update a background model. This background model provides a statistical description of the entire background scene. Foregrounds detections then identify pixels in the video frame that cannot be adequately explained by the background model, and outputs them as a binary candidate foreground mask. Finally, data validation examines the candidates mask, eliminates those pixels that do not correspond to actual moving objects, and outputs the final foreground mask. Real-time processing is still feasible as these sophisticated algorithms are applied only a small number of candidates foreground pixels. The outcomes of the research are to obtain the real-time moving vehicles, speed of vehicle at the junction and types of vehicle. Secondly, to developed an intelligent surveillance system able to detect aberrant behavior by drivers and people on foot crossing pedestrian crossings and in other urban junctions. Lastly, to obtain the robust surveillance system in real-time moving objects detection.