Electronics and Computer Science

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Vehicle speed tracking using low level image processing

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A project progress report submitted for the award of

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Abstract

Speed cameras have been in use in the UK for over 25 years, with their use growing in built up areas. Despite this there are still rural sections of the country that complain of repeated dangerous driving across local roads. The main issue with installing speed cameras in these areas is both the high expense and power usage of these devices, and their high visibility simply shifting speeding onto similar rural roads nearby. Additionally, all devices that use radar for speed detection are vulnerable to radar jamming devices which can scramble or overpower a detector to give a false reading of speed.

A proposed solution could be to provide a cheap and low-profile speed detection system for installation in rural areas. Full radar-based detection systems are inadequate for this, due to the often large and visible detection circuits needed, and the cost of installing even a low power radar device.

However, a device which uses images taken from a digital camera could solve these issues, being both cheap and low power. Hence the task of this project is to develop, implement and prototype a system capable of detecting a vehicle and determining its speed in semi-real time to store vehicle information for suspected offences.

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# Project Goals

My overall aim with this project is to create a camera-based speed detection system. The system should be able to autonomously detect a vehicle, take a rapid series of images of the vehicle with a fixed interval between the images, and store these images. When the images have been taken, the system should then be able to process these images into data regarding the distance between the fixed camera and the moving vehicle for each image. Using this data, and the time between each image, the speed between each image can be calculated by taking the distance between two successive images and dividing it by the time between images.

# Background and report of literature search

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# Report on Technical Progress

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# Plan of remaining work

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References