

**Speed detection and speed violation prevention in expressways:
A computer vision and Internet of Things (IoT) based approach**

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The implementation of expressways into Sri Lankan road network has significantly helped to reduce travel times between destinations. Although speed limits are strictly enforced within the expressways, frequent occurrences of accidents are observed due to excessive speed. Hence, speed detection and appropriate actions to dissuade excessive speeding should be carried out. However, presently speed detection in the local expressways require significant human involvement. The current system requires a policeman using a handheld radar based speed gun to detect the speed of the incoming vehicle and notify through radio to an officer stationed at the expressway exits. This system is constrained by several factors, including human involvement and lack of vehicle identification system at the exits or interchange posts. Technology has evolved especially in the past decade where stand-alone units provide the license plate number and vehicle speed, which is conveyed to the police highway patrol such as Gatso and Truvelo. Yet these systems are costly, and implementing in a Sri Lankan context is problematic. The need of a simple, smart and low cost solution is highlighted. The study is expected to develop a stand-alone automated system to detect speed, process the data and communicate required information to the relevant parties.

Keywords: Computer vision, Internet of Things, Speed detection, Surveillance, Traffic monitoring