

<p align="center">FORM 2</p> <p align="center">THE PATENTS ACT 1970</p> <p align="center">39 OF 1970</p> <p align="center">&</p> <p align="center">THE PATENT RULES 2003</p> <p align="center">COMPLETE SPECIFICATION</p> <p align="center">(SEE SECTIONS 10 & RULE 13)</p>		
<p>1. TITLE OF THE INVENTION</p> <p align="center">CV based accident avoidance system through video surveillance using Deep Learning Algorithms</p>		
<p align="center">2. APPLICANTS (S)</p>		
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2. PREAMBLE TO THE DESCRIPTION		
<p style="text-align: center;">COMPLETE SPECIFICATION</p> <p>The following specification particularly describes the invention and the manner in which it is to be performed</p>		

CV based accident avoidance system through video surveillance using Deep Learning Algorithms

Abstract:

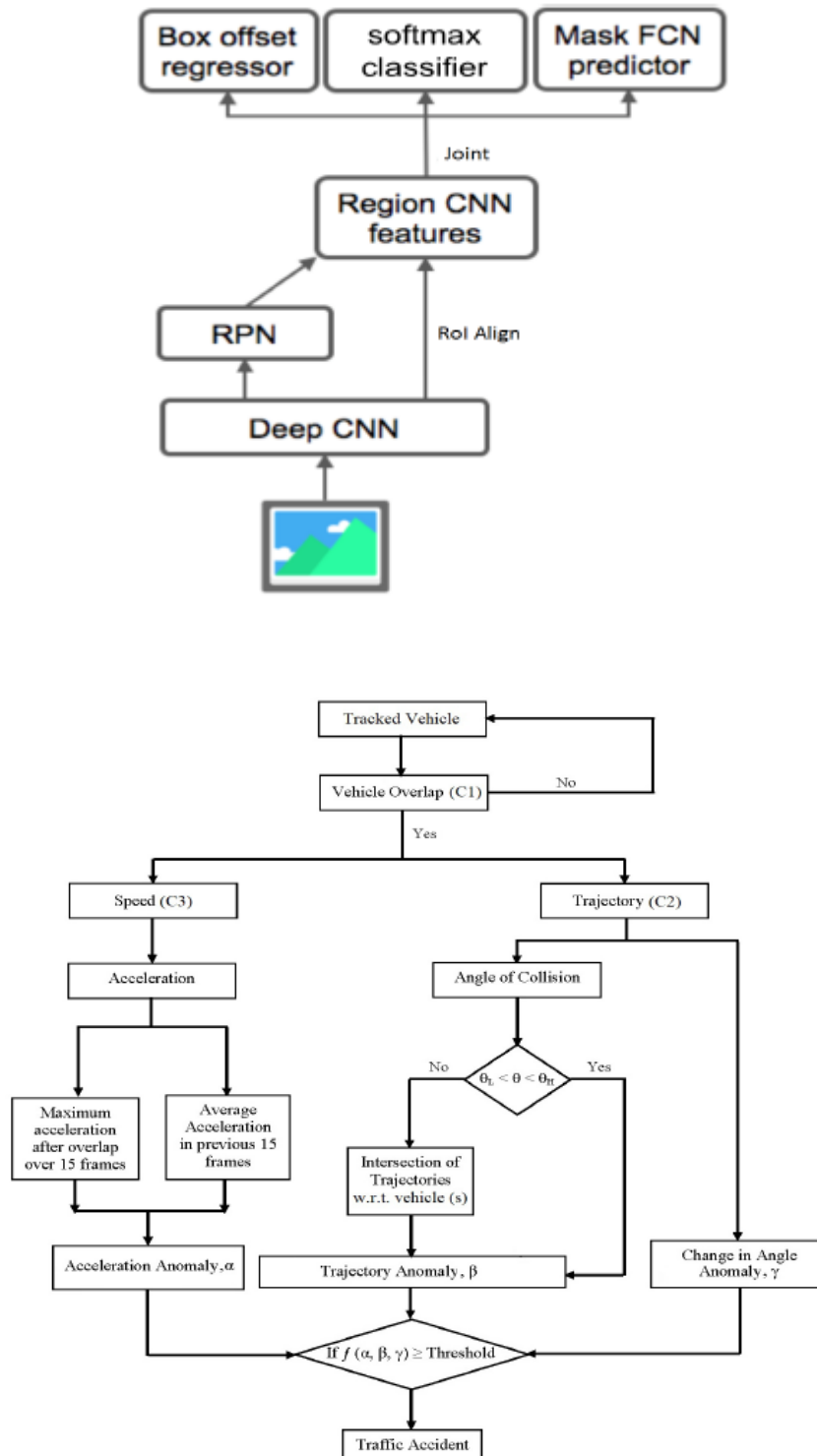
Detecting accidents using computer vision become useful but time-consuming task. Here we proposed a neoteric framework for detecting road accidents. In the proposed framework for surveillance footage, a Mask R-CNN object detection algorithm is used, followed by an efficient tracking algorithm. Anomalies in the vehicle's speed and trajectory are used to predict the likelihood of an accident occurring after an accident involving another vehicle. Using the proposed framework in conjunction with CCTV footage, it is possible to achieve very high Detection Rate. The framework was tested under a variety of conditions. This included bright sunlight and low visibility, as well as precipitation such as hail and snow. According to the findings, an effective framework has been established that will allow for the development of real-time vehicular accident detection algorithms.

DESCRIPTIONS:

People's daily lives have become increasingly entwined with automobile traffic, which has a direct impact on a variety of human activities and services, including transportation. As a result, road traffic management is critical for efficient transit, particularly in densely populated urban areas. When it comes to fatalities and property damage caused by vehicle collisions, the number of vehicles is directly related to the number of vehicles manufactured. Delay in reporting accidents results in delayed medical assistance for victims despite numerous measures taken to improve road monitoring technologies. As a result, human perception of captured video is critical in today's traffic management technologies. As a result, human operators must exert considerable effort in order to respond to unexpected events. By 2030, the country is expected to rank fifth in terms of fatalities or injuries. Because of advancements in computer vision, there is no longer a need for a human operator to monitor the event. Here we proposed a pragmatic solution for paramedics and traffic departments in need of immediate assistance. In this paper, which employs a modern deep learning framework, many well-known roadside objects can be detected using a modern supervised deep learning framework. We can ensure that this approach is appropriate for real-time situations that can change due to weather conditions and other factors if we use this method. We can use our parameters to identify distinguishing characteristics in vehicle collisions by using the framework's detection of motion anomalies. Our approach will recognise vehicular accidents to assist human operators. The overall dependability of our system is increased because it incorporates multiple parameters to assess the likelihood of an accident. Because we are focusing our attention on a specific area around the masked vehicles, we may be able to pinpoint the location of the accident events. For example, using the proposed framework for detecting accidents in accident videos taken in various weather conditions, a 71% detection rate and a 0.53% false rate were achieved. The results show that the proposed method is superior, which is reassuring. This research will not be useful in high-density traffic due to a lack of accuracy in vehicle detection and tracking. Large

obstacles may obstruct the cameras' field of view, affecting vehicle tracking and the collision detection system.

DRAWINGS:



CLAIMS

1. CV based accident avoidance system through video surveillance using Deep Learning Algorithms consist of CV, CNN, Object Tracking, DL, etc.,
2. CV based accident avoidance system through video surveillance using Deep Learning Algorithms of claim 1, wherein said that Enhance user experience.
3. CV based accident avoidance system through video surveillance using Deep Learning Algorithms of claim 1, wherein said Vehicular Traffic has become a daily part of people's lives, affecting many human activities and services.
4. CV based accident avoidance system through video surveillance using Deep Learning Algorithms of claim 1, wherein said the existing system is less accurate.
5. CV based accident avoidance system through video surveillance using Deep Learning Algorithms of claim 1, wherein said that a new framework is proposed.
6. CV based accident avoidance system through video surveillance using Deep Learning Algorithms of claim 1, wherein said that With a 71% detection rate and a 0.53% false rate, the proposed framework can detect accidents in various environments.