Intelligent Vehicle Damage Assessment and Cost Estimator for Insurance Companies

Literature survey

TEAM DETAILS:
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I)

Title:

Automatic assessment of damage and repair costs in vehicles

Authors:

Vikas Taliwal, Boston, Siddhartha Dalal, Kaigang Li, Brooklyn

Description:

A method for automatically estimating a repair cost for a vehicle, comprising: receiving, at a server computing device over an electronic network, one or more images of a damaged vehicle from a client computing device; performing image processing operations on each of the one or more images to detect external damage to a first set of parts of the vehicle ; inferring internal damage to a second set of parts of the vehicle based on the detected external damage; and, calculating an estimated repair cost for the vehicle based on the detected external damage and inferred internal damage based on accessing a parts database that includes repair and labour costs for each part in the first and second sets of parts . Additionally in some embodiments, the server computing device may classify the loss as a total, medium or small loss.

Year:

October 12, 2017

II)

Title:

Automatic Car Insurance using Image Analysis

Authors:

Aniket Gupta, Jitesh Chogale, Shashank Shrivastav

Description:

Image analysis methods extract information from an image by using semi-automatic or automatic techniques termed: image understanding, image description, scene analysis, pattern recognition, computer/machine vision etc). Image analysis is different from the various other types of image processing methods, such as the restoration or enhancement in that the end result of image analysis procedures is a numerical output rather than an image or some pictorial output. By analyzing different techniques in literature review we conclude different technologies used to provide solutions for insurance companies, such as Srimal Jayawardena uses 3D model of car and other latest papers uses CNN model and categories different types of damages which provide efficient machine learning concepts to predict cost evaluation for damage.

Year:

April 5, 2020

III)

Title:

Car Damage Detection using Machine Learning

Authors:

Girish N, Mohammed Aqeel Arshad

Description:

One of the key research topics in computer vision is object detection. On the instance level, it determines the category and position information of the object of interest in the image. RCNN, Fast RCNN, Faster RCNN, and SSD are some of the most popular target detection algorithms. These frameworks, on the other hand, necessitate a large quantity of training data and thus end-to-end detection is not possible. The detection frame's positioning ability is limited, and the gradient disappearance or gradient explosion is common when a feature is extracted as the number of convolution layers grows. For these drawbacks, Author proposed a residual network (ResNet) that uses the residual module to help the model converge, accelerates neural network training, and integrates it with the Mask RCNN target detection model to achieve object detection and segmentation, significantly enhancing model detection accuracy. Mask RCNN is the first deep learning model that incorporate target identification and segmentation in a single network.

Year:

May 15, 2021