Literature

Abstract

The rapidly expanding automobile industry highly backs the equally fast-growing auto insurance market. Although until now this industry has been solely based on traditional ways to make repair claims. In case of an unfortunate accident, the claims for the car damage needs to be filed manually. An inspector is required to physically analyze the vehicles to assess the damage and obtain a cost estimate. In such situation, there is also the possibility of inaccurate settlements due to human errors. Automating such a process with the help of machine learning and remote usage would make the process a lot more convenient for both sides of the damage, increasing productivity of the insurance carrier and satisfaction of the customer.While the technolog is yet to achieve the highest possible levels of accuracy, above is a proof of concept of the appication of Deep Learning and Computer Vision into automating the damage assessments by building and training Convolution Neural Networks.Finds location of damage as front, rear or side.Determines severity of damage as minor, moderate or severe For the photography of vehicle damage, it is necessary to shoot the vehicle damage head-on so that the damage location is as far as possible in the center of the picture. The shooting distance is about 1 meter, and it is suitable to shoot clearly. At the same time, it is not mandatory to satisfy what angle of shooting can be taken, which is easy to operate and makes it easier for the damage fixer or other users to use.

Intelligent Vehicle Damage Assessment and Cost Estimator for Insurance Companies

The field of Computer Vision is yet developing and not mature enough to deal with modular phone camera quality images. Angle, lighting, resolution are factors that can easily cause major disruptions in image classification.Car insurance settlement claims require near perfect accuracy to ensure the customer is not frauded in the process. Such models would be required to be trained on humongous datasets which are highly difficult to procure.To run such heavy datasets to ensure maximum accuracy would be imposed by hardware restriction. Storing, training and deploying such heavy datasets over the cloud would require expensive architecture.While the computer can avoid human errors, there are often situation that would require such a model to flag for human assistance.Systems running on the Cloud, especially those dealing monetary data are also heavily susceptible to cyber risks and require heavily structured frameworks to ensure customer data security.Such a process will require a certain level of manual control and filter to avoid flooding of fraudulent insurance claims.Our system architecture is built around the following modules:User submits image containing the damage. Gate 1: Checks to ensure the submitted image contains a car. Gate 2: Checks to ensure the submitted image of car is damaged avoiding fraudulent claims. Location Assessment: Tests image against the pre-trained model to locate damage Severity Assessment: Tests image against pre-trained models to determine the severity of damage. Results: The results are sent back to the user and third party