AUTO-CLAIM CAR INSURANCE USING IMAGE PROCESSING

Idea Description

Vehicle damage detection is one of the important steps in claiming car insurance when it met with an accident. Normally damage detection is the process done by the insurance company by sending person for survey after the accident. After the accident, the guilty driver or customer or rental industries should inform to insurance company, then they should call police and should file FIR, they should capture pictures as a proof and should submit all their documents to insurance company, after this lengthy process insurance company will send surveyor to survey your accident. So, in this process it's takes lot of time, and sometimes surveyor may cheat us or surveyor may do mistakes in survey. So, we are making the process short and simple. Our project will help guilty driver to calculate appraisal and himself can calculate the cost of recovery. For this we are using image processing which helps to identify the images after training. As we know CNN are doing best in image processing (Convolution neural network). In this process, guilty driver will take pictures and upload into our website, and our website will proceed the things. Process of detecting the damaged car, it will check damage location, severity of damage and it calculates the estimated amount which driver or rental industries can claim.

Goals and Objectives

Efficiency and Speed :

Reduce the time and effort required for the auto insurance claim procedure significantly by eliminating the requirement for physical

inspections by insurance surveyors. The primary objective is to expedite the claims procedure.

Accuracy :

By using image processing methods, in particular Convolutional Neural Networks (CNNs), to boost the damage assessment's accuracy. This ought to result in a more precise evaluation of the extent and location of the damage.

Damage Detection :

To create and install a powerful image processing system that can detect and assess car damage using uploaded photos. Identifying the type, location and extent of damage is part of this process.

Cost Estimation :

Accurately estimate repair and maintenance costs based on observed damage. This helps drivers or rental companies understand the value of a potential insurance claim.

Cost Reduction :

Reduce costs for both the insurance company and   claimants. Automating damage assessment eliminates the need for on-site surveyors, resulting in cost savings.

Motivation

This project aims to use advanced technology to make the auto insurance claims process more efficient, accurate and user-friendly. It

aims to address longstanding issues in the insurance industry and improve the overall experience for both insurers and policy holders.

Significance

The importance of this project is multifaceted. This will improve the efficiency, fairness, transparency and security of the auto insurance claims process, benefiting both insurers and policyholders. This is a major step forward in how the insurance industry can use technology to provide better services and experiences to their customers.

Literature Survey

A lot of money is wasted in the car insurance company called claim leakage, Claims leakage is gap between optimal and actual settlement of a claim. We are helping guilty. Driver or rental industries to know the estimation of claiming amount just by uploading their damaged car pictures. And we want to help insurance company by saving their time. So, we are using CNN (convolution neural network) for this problem. CNN are very good at image processing which gives more than 80% accuracy. Here we are taking the damaged car images to train CNN. Data set to train CNN is particularly not available so we are thinking to collect the images from the internet and different sources. And with the help of CNN, we can find out that it's a car or not, and vehicle manufacturers and year of manufacture. Image processing is helping us find out the damage location and severity of damage. Severity of damage helps us to calculate the estimation of claiming amount.

Objectives

The goal of employing image processing to implement auto-claim automobile insurance is to greatly cut down on the time it takes to process claims and improve the accuracy of damage assessment, giving

policyholders faster and more convenient service. While protecting the security and privacy of sensitive customer information, this strategy aims to reduce fraudulent claims, enhance customer satisfaction, and streamline insurance company workflows. In the end, this will result in cost savings, increased operational efficiency, and better use of data for risk assessment and compliance.

Features

Since there is no publicly accessible data collection for the classification of car damage, we have developed our own data set including photographs of various forms of vehicle damage. We take into account seven different forms of damage that are frequently observed, including glass fractures, bump rods, doors, broken headlamps and tail lamps, scraping, and cracking. Additionally, we have gathered pictures that are categorized as non-abrasive. The images were personalized after being gathered from the web.

Expected Outcome

The result will be the degree of damage to the car, which we can categorize using the learned characteristics into medium, low, and heavy severity.

References

1. Sonka, M., Hlaváč, V., & Boyle, R. (1993). Image pre-processing. In Springer eBooks (pp. 56–111). https://doi.org/10.1007/978-1-4899-3216-7_4

2. Liu, Y., & Dorai, C. (2007). Applying Image Analysis to Auto Insurance Triage: A Novel Application. Car Insurance. https://doi.org/10.1109/mmsp.2007.4412872

3. Xia, H., Zhou, Y., & Zhang, Z. (2022). Auto insurance fraud identification based on a CNN-LSTM fusion deep learning model. International Journal of Ad Hoc and Ubiquitous Computing, 39(1/2), 37. https://doi.org/10.1504/ijahuc.2022.120943

Source Code Link

https://github.com/sriramofficial9/Feature_Engineering_project