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Survey On Damage Analysis Of An Automobile And Reimbursement

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Abstract— By lessening misfortune alteration costs, enhancements within the To begin with Take note of Misfortune and the speed with which claims are inspected and assessed might spare a lot of cash within the vehicle protections claims prepare. Car harm is consequently distinguished and classified utilizing progressed picture examination and design acknowledgment innovation. A method that compares before-and-after-accident car pictures to naturally identify the harmed location.

Keywords— Convolution Neural Organize, Profound Learning, Picture classification, R-CNN, and protest location

I. INTRODUCTION

In today's society, the number of automobiles we utilize is quickly expanding; let's acknowledge that there isn't a single road without a car. As a result, an increment in the number of automobiles on the street may result in an increment in the rate of mishaps that happen adjacent; furthermore, the number of mishaps that happen adjacent would be noteworthy; the mischances would not be especially genuine, but the car would be harmed, inciting individuals to record protections claims.

The complete concept spins around the subject of how a client might claim protections more quickly. To keep the strategy as calm as conceivable, a machine-learning demonstration is made that employments picture preparation to recognize the pictures and compute the rate of harm to the car. The model's results will be utilized to decide the user's installment. It would be speedier than the manual method since the ML show would be exclusively capable of this strategy. Analyze the harm in a division of the time it takes

people and with the slightest sum of human engagement conceivable.

The paper is organized as follows: Section II describes the Literature Survey, Section III discusses the Proposed System which includes implementation and Methodology, and System Architecture, Section IV discusses the Conclusion, and Section V provides References.

II. LITERATURE SURVEY

Li Ying & Dorai Chitra displayed at [1] have proposed Advancements within the, To begin with, Take note of Loss and velocity within the examination and assessment of claims, agreeing to them they utilized CNN Demonstrate for the auto protections claims handle, which seem to drive noteworthy values by lessening misfortune alteration cost. This inquiry about proposes an application in which capable picture examination and design acknowledgment innovations are utilized to consequently recognize and classify car harm. They built a model framework to test its practicality, which consequently recognizes the harmed area(s) based on a comparison of ages. On photographs collected from forty scaled show automobiles in appropriately controlled circumstances, the performance of some time recently- and after-accident vehicles within the model framework was inspected, and positive findings were found. Their proposed idea, they accept, might grow into an awfully promising application field where the engine protections commerce may pick up impressively.

U. Waqas, N. Akram, S. Kim, D. Lee, and J. Jeon, [2] have developed a model framework to test its practicality, which consequently distinguishes the harmed area(s) based on a comparison of ages. On photos collected from forty scaled show automobiles in appropriately controlled circumstances,

the execution of some time recently- and after-accident vehicle within the model framework was inspected, and positive discoveries were found. Their proposed idea, they believe, might extend into an awfully promising application field where the engine protections commerce seems to pick up significantly with the headway of picture investigation and design acknowledgment advances. To address this issue, a half-breed arrangement is proposed, in which as it were authentic photographs are given as input to the harm classification calculation. In arrange to identify fake photographs, moiré impact discovery and metadata investigation are utilized. Harm classification precision is 95 percent, and moiré impact location precision is 99 percent. Pictures in destitute lighting, unusual angles, a run of car models, pictures taken within the rain or snow, minor rub on automobiles, and so on were the most disadvantages. Indeed even though it accomplished robotization by utilizing different perspectives.

Phyu Damage Kyu and Kuntpong Woraratpanyaat [3] illustrated how Counterfeit Insights (AI) based on machine learning and profound learning calculations may offer assistance to fathom the issue of harm examination within the protections industry. In this article, they utilized VGG16 and VGG19, two profound learning-based calculations, to identify and survey car harm in real-world datasets. The calculations recognize the harmed area of a car, determine its position, and after that gauge the seriousness of the harm. It begins with recognizing the impact of domain-specific pre-trained CNN models, which are prepared on an ImageNet dataset, and after that fine-tunes the comes about since a few of the categories can be fine-grained to achieve a certain objective. The framework at that point utilizes exchange learning in pre-trained VGG models and utilizes a few approaches to extend the system's precision. Agreeing to their discoveries, VGG19 performs way better than VGG16. It is found after analyzing and executing the models that the results.

Najmeddine Dhieb, Hakim Ghazali, Hichem Besbes, and Yehia Massoudat [4] illustrated robotized and proficient profound learning-based frameworks for recognizing and localizing car harm. To include extraction and harm distinguishing proof, the recommended strategy coordinates profound learning, occurrence division, and exchange learning methods. Its objective is to distinguish vehicle harm naturally, discover it, classify its seriousness levels, and delineate it by forming its correct area. They have moreover appeared significant advance in tackling classification issues when a restricted dataset was deficient to prepare a CNN to demonstrate. The source assignments in their framework are the classes of the pre-trained VGG models, whereas the distinguished harmed districts of their areas, as well as their

harmed levels, are the target assignments. A diminishment in show preparing time is additionally the foremost challenging perspective of this approach. Performing picture classification errands with an ordinary CNN show and recognizing the ideal weights for it.

III. PROPOSED SYSTEM

The suggested method first takes photographs of one's damaged automobile, then feeds these pictures into our ML model, which uses image processing to identify the image's details, and then uses image processing to analyze the percentage of damage to the automotive. The photographs are then separated into two categories: replace and repair. If the damage percentage is greater than, say, 80%, the damaged part must be replaced, whereas in the other situation, "Replace" determines the compensation amount based on the damaged percentage. Finally, it provides a full report on the automobile's analysis, which can be used to file a claim for reimbursement with the insurance company.

Methodology:

To start, it collects pictures of one's harmed vehicle, which is at that point bolstered into a machine learning demonstration that employments picture handling to distinguish the features of the picture, and after that utilizes picture preparation to decide the percentage of harm to the car. At that point, as appeared within the square chart, It parts the pictures into two categories: supplant and repair. If the harm rate is more prominent than, say, 80%, the harmed portion must be supplanted; in case the harm rate is less than 80%, the stipend sum is calculated based on the harmed rate. Make a nitty gritty report based on our review of the car and yield it to the protection company for payment.

Implementation:

The examination of car harm show takes a JPEG picture as input and forms it through different steps. The extension is isolated into two stages: recognizing the harmed car (that's, deciding whether the car is damaged or not) and after that deciding the position of harm (front, raise, or back). Picture categorization and protest location are two methods that can be utilized to total the ponder. Its investigations and categorizes the picture given by the client as either a harmed car or an entire car, i.e. undamaged or totally fine. Protest discovery and picture localization, on the other hand, come into play to help us in deciding the position of the harm. Utilizing Thing Discovery, it can expect the area of each question as well as the class. The CNN is isolated into 1.Convolutional layer to smoothing. Where, the input picture goes through convolution, max-pooling, densing, and straightening.

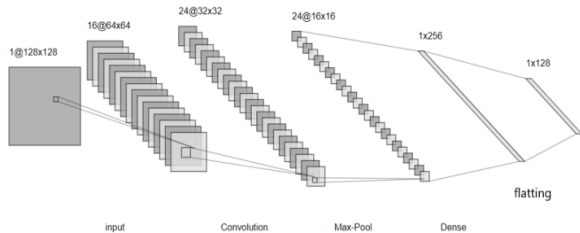


Fig1:Input to Flattening

2. Image classification using a fully convoluted neural network. This network consists of an input layer at the start and fully connected layers that are hidden layers, activation functions, and output layer.

Each of the connections has weights, which assists in the calculation of the image as either a whole or damaged car.

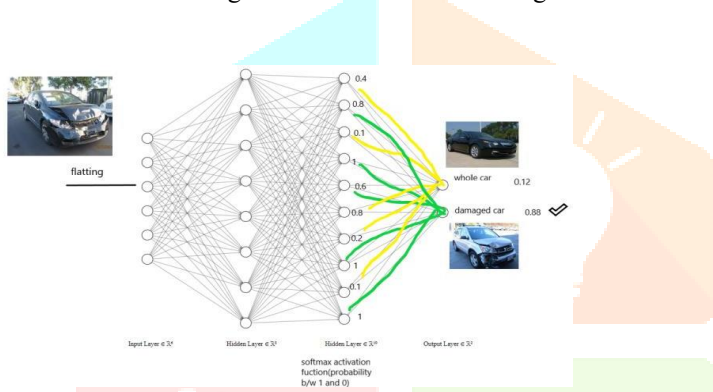


Fig 2: Image Classifier Using a Fully Connected NN

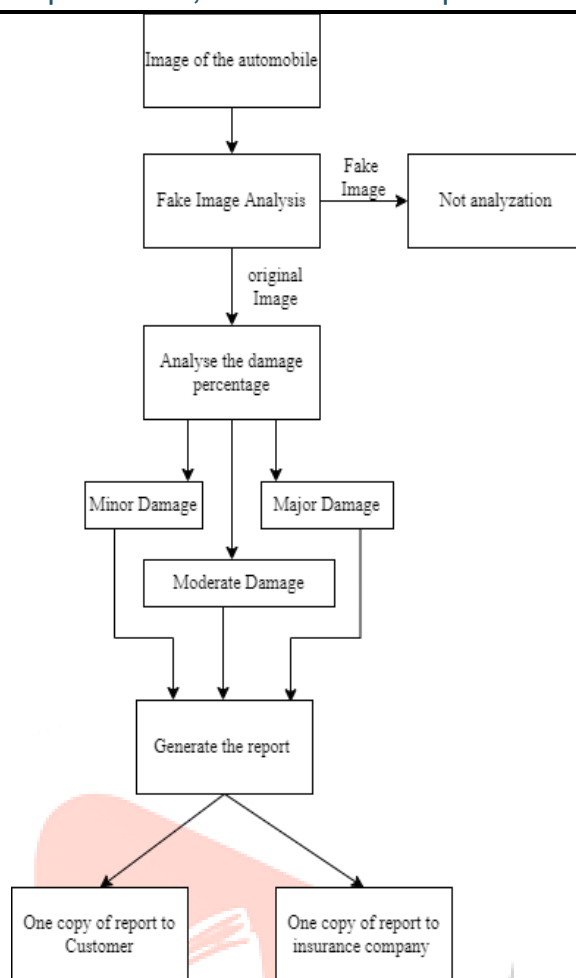


Fig 3: Flow Diagram

IV. CONCLUSION

In this work of Harm investigation of a vehicle in common and protections recover, a framework has been outlined utilizing CNN and picture classification which takes the input from a client as a picture to test the seriousness of harm, which happens in a grouping of two steps. To begin with, being the picture classification, here the input given by the client is prepared by the neural organize to distinguish the car that's on the off chance that the car is harmed or not. and afterward, on the moment step, the straightened input gotten as the yield in step 1 is connected for question location to recognize the locale and seriousness of the damage, where locale can be raised, front or side and seriousness is isolated into minor, direct and major. The R-CNN organization recognizes the seriousness of the harm and a report is recorded and sent to the client and the protection firm.

The major drawback of the proposed model is that it only identifies the physical visible damage and not the internal or interior damage.

V. REFERENCES

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