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Helmet Detection and Number Plate Recognition

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Abstract:

In a growing and developing country like India where population is increasing on each day, additionally results in engorged roadways attributable to vehicles, animals,road side outlets. thanks to that, accidents are at associate degree in comparable high these days. A survey states that India may be a motor bike dominated country that occupies regarding sixty five % of roadway vehicles utilized in India. In metropolitan cities like Bangalore accidents and its death rate is controlled dueto educated population and attentive traffic agency andquick response from the health officers however recent statics show that despite measures being taken, accident rate isnot decreasing even in metropolitan cities thanks to voters negligence and carelessness. underneath the new government,where a developing country like India is taking steps towards digitisation, most of the traffic lights at cross roads are in the middle of cameras. Keeping thedigital India in mind, this project is with ambition progressing to develop a surveillance-based code which might discover if a specific rider is sporting a helmet. As from a motor bike rider purpose of read, the sole and should security live he/she might take is that if he/she is sporting a helmet, wearinga helmet drastically reduces the fatality % in associate degree unfortunate event of associate degree accident

Keywords —Automatic Number Plate Recognition, You Only Look Once (YOLO).

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I. INTRODUCTION

The Helmet Detection and variety plate recognition, police investigation of two-wheeler riders wearing a helmet or not and police investigation helmetless two-wheeler license plate victimisation Deep Learning based mostly object detection algorithms. With varied deep learning algorithms, availablewe square measure moving forward with YOLO period Object Detection rule. The leveraged real time object detectionusing YOLO rule is associate degree rule supported regression,instead of choosing the fascinating a part of a picture, it predictsclasses and bounding boxes for the complete image in one run of the rule.YOLO is made in such manner that approaches over the image/video frame quickly and one convolutional neuralnetwork is deployed over the image/video and leading to formation of bounding boxes for the categories with the label and its

confidence and here we've got our categories because the helmet,motorbike, vehicle plate and non-helmet rider and also the result that we tend to aim is to discover the vehicle plate of helmetlessmotorbike rides. laptop vision victimisation CNN (convolutional neural network) allows a laptop to spot or discoverprocess /object in image or video as humans do. Due to advances in AI and numerous innovations in deep learning andneural networks, this field has taken leaps in past years and has surpassed humans in some tasks of object detection and labelling.r a patient with a higher accuracy by combining the results of different machine learning techniques.

II. METHODOLOGY

In order to achieve our goal, our methodology comprises if few steps from which we accumulate datasets of the given attributes for the system and we will do the pre-processing of our given attribute to apply on the given machine learning techniques find out the predictive analysis of the data.

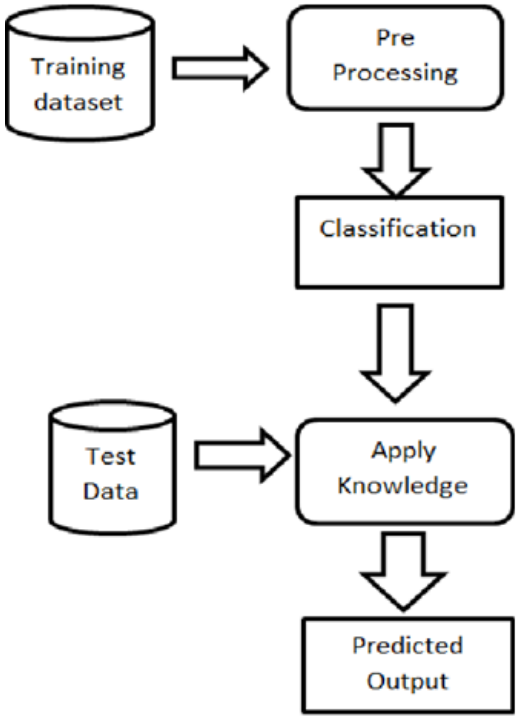

Fig 1: AutomaticDetection Algorithm

GOALSANDOBJECTIVES

The main goal of Project is to protect the drivers head in case of accident. In case of accident, if the motorcyclist does not use can be fatal. This paper aims to propose a system for detection of motorcyclist without helmet

Repeated Violator Identification

1. To collect and store the datasets.

2. To provide the recorded video file or the Live stream of the video as the input of the program.

3. To crop or extract Number Plate of each and every individual from each frame extracted.

4. To store and display the Number Plate for each of the cropped or extracted vehicle of the recorded.

5. To store and display the Number Plate for each of the cropped or extracted vehicle of the live video.

CONTRIBUTIONTOSOCIETY

Helmet detection system is that it creates awareness among people who use motorized two-wheelers and don't wear helmets so, by creating such a system which detects the two-wheeler riders without helmets it and raise a challan for violation, people will start acknowledging this and wear helmets and can be safe.

Itaware the motorcyclists to wear helmets correctly, the risk of death can be reduced by 38%, and the risk of head injury can be reduced by 62%

APPLICATIONS

This project aims at developing a traffic violation system that will be helpful to the traffic control system considering the current system where we only have a manual check point where traffic police raise a fine for a rider if he is found not wearing a helmet, by this system the defaulter's license plate will be captured and he will have to pay the respective fine.This system with the help of technologies like Deep Learning, Object Detection and the other required frameworks will be able to detect the riders without helmet .

CONCLUSION

Through this project we would like to develop a system which might help in transportation awareness among those that use two wheelers while not carrying helmets. we have a tendency to bring forward a framework for period detection of traffic rule defaulters who ride bike while not exploitation helmet. By exploitation variedtechnologies like Deep Learning, Objection detection we have a tendency to aim in transportation sensible results and increase the potency of thesystem and facilitate the control department to find out the defaulters simply instead of counting on the presentsystem wherever cops notice the defaulters and lift a fine, in this current system it's not economical as a result of not all the defaultersare found guilty. So, by making such a system we have a tendency to feel folks will be additional careful and can not be negligent towards wearing helmets and by this we are able to avoid several accidents and save several lives.

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REFERENCES

- Detection of License Plate Number and Identification of Non-Helmet Riders using Yolo v2 and OCR Method
  B. Srilekha;K. V. D. Kiran;Venkata Vara Prasad Padyala
  2022 International Conference on Electronics and Renewable Systems
  Year: 2022 | Conference Paper | Publisher: IEEE

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- Helmet Detection And Number Plate RecognitionUsing Deep LearningPushkar Sathe;AditiRao;AdityaSingh;RitikaNair;Abhilash Poojary2022 IEEE Region 10 Symposium (TENSYMP)
  Year:2022 | Conference Paper | Publisher: IEEE

.

- Real-time traffic monitoring and traffic offense detection using YOLOv4 and OpenCV DNNFahimul Hoque Shubho;FahimIftekhar;EkhfaHossain;Shahnewaz Siddique
  TENCON 2021 - 2021 IEEE Region 10 Conference (TENCON)

- Helmet Use Detection of Tracked Motorcycles Using CNN-Based Multi-Task LearningHanheLin;Jeremiah D. Deng;DeikeAlbers;Felix Wilhelm Siebert IEEE Access
  Year: 2020 | Volume: 8 | Journal Article | Publisher: IEEE

- Real-Time Detection of Motorcyclist without Helmet using Cascade of CNNs on Edge-device Dinesh Singh;C.Vishnu;C. Krishna Mohan 2020 IEEE 23rd International Conference on Intelligent Transportation Systems (ITSC) Year: 2020 | Conference Paper | Publisher: IEEE

- Detection of Motorcyclists without Helmet in Videos using Convolutional Neural Network
  Year: 2020 | Conference Paper | Publisher: IEEE

- Automatic detection of bike-riders without helmet using surveillance videos in real-time
  Year: 2019 | Conference Paper | Publisher: IEEE

- Detection of License Plate Number and Identification of Non-Helmet Riders using Yolo v2 and OCR Method

B. Srilekha;K. V. D. Kiran;Venkata Vara Prasad Padyala
2022 International Conference on Electronics and Renewable Systems
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