**VISVESVARAYA TECHNOLOGICAL UNIVERSITY**

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A Final Year Project Synopsis on

**“IoT Based Vehicle Accident Detection, Tracking and License plate recognition using deep learning”**

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**ABSTRACT**

The intent of this project is to design a license plate recognition (LPR) system during accidents in the domain of English language for smart vehicle tracking. The appeal of cars has likewise expanded the activity perils and the street mishaps. Life of the general population is under high hazard. This is a direct result of the absence of best crisis offices accessible in our nation. A programmed alert gadget for vehicle mischances is presented in here. The proposed configuration is a framework which can and sends the essential data to emergency treatment focus inside a couple of moments covering geological directions, the time and point in which a vehicle mishap had happened. The proposed system is designed on the basis of computer vision tools and deep supervised machine learning model. The system has three modules:

1. Accident detection and alerting system

2. License plate detection

3. Character segmentation and recognition of the characters of the License Plate (LP) and alerting.

The goal of detection is to localize the plate area from the vehicle image and to crop region of interest (LP). It is executed by applying following process: preprocessing the image, conversion to binary image, contour detection and filtering the contours to get the LP's character contours, tilt correction and cropping the plate area from the image. Then the image and concerned information is transmitted using a switch, Switch is likewise given so as to end the sending of a message in uncommon situation where there is no loss, this can spare the valuable time of the medicinal safeguard group.

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**INTRODUCTION**

Today, the advanced universe of science and innovation, Transportation framework is an essential piece of living. Having this with us gives us the vibe of the generally mingled animals on the planet. Vehicles assume a crucial part in our day by day life yet like each other thing, with a few positives there are negatives as well. Street mischances are the real danger to human lives. Speed is the key factor in charge of a significant number of the incidents. PDA based mischance identification and warning framework will track the mishap with assistance of sent effect sensors, will process the information through microcontroller unit and with a Smartphone application the concerned people are informed

Speed is a champion among the hugest reasons for a mischance. These days, GPS beneficiary has turned into a vital piece of a vehicle. Other than utilizing as a part of different purposes, the GPS can likewise screen the speed and distinguish a mishap. Known location determination devices cooperate with location systems such as GPS, Global Navigation System provide a user with the latitude and longitude of a location. These devices might be used to direct a user back to a desired location, like the location of a parked vehicle. For instance, if the latitude and longitude of a parked vehicle were input to the navigation instrument, the instrument could readily calculate the distance and bearing to the vehicle.

Adding on to that the License plate of the nearby vehicles are captured in order to identify the culprit and goal of detection is to localize the plate area from the vehicle image and to crop region of interest (LP).

**PROBLEM DEFINITION**

The vehicle’s usage in this busy world has been increased. There is an increased possibility for accident to occur due to lack of traffic awareness. The rules have to be followed strictly to avoid such critical situations. But, the urge for following those rules is not inculcated. So there are some possibilities of hit and run incidents to occur periodically. This is to avoid being caught by the laws and imprisonments.

The Present existing system is very poorly structured and has little impact .Every time an accident occurs, there is a delay in action initiated and this leads to loss of valuable life. The golden hour which is crucial in saving a person’s life is entirely dependent on the speed of information transfer. The accident is identified by the nearby people or the victim itself

The accident alert system is designed using IOT and License plate recognition system [1]. It is primarily developed to save lives of people in road accidents and to identify the culprits.

The app is interconnected with sensors [2], which are attached in user’s vehicle and responsible for detection of an fall down or accident [3] ,and after they sends this information to the application which is pre-installed in the user’s mobile. The application will send alert message regarding accident and its location to emergency contacts automatically, and it automatically identifies the number plate of the nearby vehicles using OpenCV based image recognition [4] system will preprocess the image, conversion to binary image, contour detection and filtering the contours to get the LP's character contours [5], tilt correction and cropping the plate area from the image and then its sends the images’s to the concerned people using IoT .The user needs to register his details while installing it and can add his desired contacts, to whom the information needs to be passed. It may take 2-3 min of time to send this message, as an alarm would be sounded on the occurrence of an event, and failing to switch it off would trigger the message. The message would also contain the location along with time

**METHODOLOGY**

This Project will be designed with three main processes:

1. Accident detection and alerting system

2. License plate detection

3. Character segmentation and recognition of the characters of the License Plate (LP) and Transmission using IoT.

It is primarily developed to save lives of people in critical situations (or) in case of road accidents. The app is interconnected with sensors, which are connected in user’s vehicle and responsible for detection of an fall down or accident event, and after they sends this information to the application which is pre-installed in the user’s mobile. A programmed alert gadget for vehicle mischances is presented in here. The proposed configuration is a framework which can and sends the essential data to emergency treatment focus inside a couple of moments covering geological directions, the time and point in which a vehicle mishap had happened. The proposed system is designed on the basis of computer vision tools and deep supervised machine learning model.

The GPS receives the location of the vehicle that met with an accident and gives the information back. This information will be sent to a mobile number through message. This message will be received using internet present in the circuit. This message will give the information of longitude and latitude values and also the image of the nearby vehicles. Using these values the position of the vehicle can be estimated and the culprit can be identified.

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