A MAJOR PROJECT SYNOPSIS

ON

DETECTING TRAFFIC VIOLATION BY TWO-WHEELER RIDERS USING AI

SUBMITTED IN PARTIAL FULFILLMENT FOR THE AWARD OF DEGREE OF

BACHELOR OF TECHNOLOGY

IN

ELECTRONICS AND COMMUNICATION ENGINEERING

Submitted By:

ANKITA PURKAYASTHA (9915102140)

DIKSHANT MANOCHA (9915102071)

YATIN CHACHRA (9915102088)

Under the Guidance of:

MR. VARUN GOEL

DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

JAYPEE INSTITUTE OF INFORMATION TECHNOLOGY, NOIDA (U.P.)

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INTRODUCTION

Road traffic safety refers to the methods and measures used to prevent road users from being killed or seriously injured. Typical road users include: pedestrians, cyclists, motorists, vehicle passengers and passengers of on-road public transport (mainly buses and trams).

Many countries around the world are facing the problem of a rapidly rising number of people injured or killed while riding two-wheelers – motorcycles and bicycles. A large proportion of the deaths and severe injuries result from injuries to the head. Helmets are effective in reducing the likelihood of head injuries, as well as their severity. Increasing helmet use in a country is thus an important way of improving road safety.

Our aim is to judge people riding their two wheelers without helmets. The people found violating the two wheeler norms will be penalized.

PROBLEM FORMULATION

A motorcycle crash can result in deadly head injuries that can often be fatal. Doctors say, when your head hits the pavement or the ground your brain is moves forward, hitting up against the bones inside the skull. It gets deformed and tears nerve fibers. The torn ones cannot heal. When you lose a brain cell, there is no replacement for it. That's where permanent damage occurs. People who have an accident like that, and survive, often don't fully recover. They may lose some intelligence, and the capacity to take care of themselves because of the damage to the system that controls their muscles. They may have a behavior change – have difficulty dealing with other people, and having proper social relationships. All this, just because a motorist did not wear a helmet.

Moreover, road safety experts also note that the pillion rider is at greater risk of suffering serious head injuries in case of an accident. A general analysis of accident profiles of two-wheelers reveals that maximum hits on the bikes by heavy vehicles like trucks and buses (where risk of fatalities are higher) occur either from the side or behind, thus making the pillion rider more vulnerable to falls and serious injuries. Worse, almost half the accident cases reaching hospitals are of pillions, further sealing the case for greater enforcement of the helmet for them.

India has among the most unsafe roads in the world. A recent study published by the United Nations suggests that about 15,000 lives across the world can be saved each year, if motorcyclists start wearing appropriate helmets.

OBJECTIVES

Following are the major objectives :

1. Real time image capturing of road traffic and processing to check whether the rider and pillion rider are wearing helmet or not.
2. If any one of the rider and pillion rider found not wearing the helmet then the realtime decision making processes starts.
3. After finding the riders not wearing the helmets their vehicle number plate will be processed,
4. After extracting the vehicle registration number, a challan will be generated against respective vehicle and all the details of the challan will be sent via email and sms to the concerned person.
5. Now its upto the owner whether he/she wants to pay the fine via our mobile app or via our website or by visiting the nearest RTO.

METHODOLOGY AND TOOLS REQUIRED

Extracting the real time image of road traffic using the CCTV cameras installed on roads. Once the image is captured the image processing tools will judge whether ant rider is without helmet or not.

If found violating traffic norms then our system designed on JAVA will generate a challan against the captured vehicle numbers and will send all the details via email and sms registerd with RTO.

TOOLS

- CCTV camera.
- Image processing tools like OCR.
- Android studio for application designing.
- Java runtime environment of web.
- Tomcat hosting server.
- Firebase as database.

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