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# Survey on Drunk and Driving Detection Using Driving Patterns and Facial Recognition

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**ABSTRACT-** According to a government survey, drunk driving constitutes to 33 percent of accidents in India Drunk driving, or officially Driving Under the Influence (DUI) of alcohol, is a major cause of traffic accidents throughout the world. In this research, we propose a highly efficient system aimed at early detection and alert of dangerous vehicle movements typically related to drunk driving. The entire solution requires only a raspberry pi placed in vehicle and with accelerometer. Software installed on the raspberry pi computes accelerations based on sensor readings, and compares them with typical drunk driving patterns extracted from real driving tests. Once any evidence of drunk driving is present, the raspberry pi will automatically Capture the face and detect the face. If the Face expression is similar to the drunken pattern then it will automatically generate warning.

**KEYWORDS:** Accelerometer; Drunk; Drive; Face detection; Raspberry pi.

## I. INTRODUCTION

Drunkenness is a state where there is a decrease in alerts and conscious level of the driver. Even though there is no direct measure to detect the sleepiness level of the driver there exist several indirect methods which can be used for this purpose. Various types of methods are present such as vehicle based movement measures, physiological measures, behavioral measures. Using those methods an intelligence system can be developed which would alert the driver in case of drunken condition and prevent accidents. The approach for the entire system is such that first we analyze the drunken driving behaviors and extract its fundamental cues based on lateral and longitudinal accelerations of vehicle, which is determined by accelerometer sensor. If a drunken driving behavior is detected then the system will prompt the camera module to take real time images. The images are divided into frames and analyzed for drunken state via image processing. If drunk condition is found, then the buzzer is triggered and the location info of the driver.

The equipment that is utilized for the whole framework is Raspberry Pi. Raspberry Pi will be set up properly for implementation. Several subjects will be taken to record the response and working of the system. The opening of eyes was indicated by circular shapes. If drunken state is detected, then circle does not appear indicating the closure of eye or drunken state of a driver. Results were shown with several photos with both eye opening and closing condition.

## II. PROBLEM DEFINITION

In the 21st century, Drink & Drive has continued to be a major challenge contributing to a large number of accidents on our roads. This continues despite the government putting in place several measures to address the problem; measures including regulation of the public vehicle travel time, increasing the number of drivers for buses that travel at night, use of alcohol blows to detect drunk drivers among many others. However, there are very few systems that are available in the market; some are not very effective while others are quite expensive to implement, thus making them reserve to few who can afford them. Hence, there is a great need to provide drunken detection system which is reliable and are affordable to the low income earners and also public service vehicles to help address the many accidents associated with Drink & Drive.

## III. LITERATURE SURVEY

Jiangpeng Dai et.al [2] proposed that smashed driving, or formally Driving Under the Influence (DUI) of liquor, is a significant reason for auto collisions all through the world. In this system, propose an exceptionally effective framework focused on early recognition and caution of risky vehicle moves ordinarily identified with alcoholic driving. The whole arrangement requires just a cell phone set in vehicle and with accelerometer and direction sensor. A program introduced on the cell phone processes increasing speeds dependent on sensor readings, and contrasts them and ordinary alcoholic driving examples separated from genuine driving tests. When any proof of alcoholic driving is

available, the cell phone will consequently alarm the driver or call the police for help a long time before mishap really occurs. We actualize the recognition framework on Android G1 telephone and have it tried with various types of driving practices. The outcomes show that the framework accomplishes high exactness and energy proficiency.

Hasanin Harkous and Hassan Artail [1] introducing that irregular driving alludes generally to alcoholic driving, exhaustion driving, and forceful driving practices. This places of business alcoholic driving identification, which really can be stretched out to apply to discovery of the other anomalous driving practices. The methodology finds out about the related on-board vehicle sensors for recognizing alcoholic driving practices dependent on picking up utilizing certain alcoholic driving signs. In a past work, we built up a Hidden Markov Model (HMM) technique and applied it to each time arrangement of the chose sensors estimations. The expectation exactness was most elevated for the longitudinal quickening, with a limit of 79%. Here, we expand our initial work that depended on HMMs and utilize Recurrent Neural Networks that spend significant time in time arrangement, where our testing results show exactness rates that go into the upper nineties.

Mohammed Madne Girnari [3] proposed With India detailing as numerous as 1.34 lakhs fatalities in street mishaps consistently, a huge 70% of them being because of smashed driving, questions are currently being raised on whether the mushrooming development of alcohol distributes along the roadways is dependable for costing valuable lives in an unfavorable way. The framework executed by us targets diminishing the street mishaps later on because of tanked driving. The motivation behind this undertaking is to create vehicle mishap avoidance by strategy for liquor identifier in exertion to lessen car crash cases dependent on driving impaired liquor. In this proposed project another strategy is utilized by use of picture preparing framework and liquor in perspiration palm for alcoholic and driving identification.

Jie Hu et.al [4] introducing Unusual driving conduct may make genuine risk both the driver and the general population. In this work, we propose to recognize unusual driving by breaking down standardized driving conduct. Filling in as the virtual driver, a customized driver model is set up for the speed control reason by utilizing the privately planned neural organization and this present reality Vehicle Test Data. The driving conduct is standardized by utilizing the virtual driver to lead the speed following assignment as characterized by the standard driving cycle test, e.g., the FTP-72. Three common unusual driving practices are portrayed and recreated, to be specific, the weariness/inebriated, the wild and the telephone use while driving. An irregularity record is proposed dependent on the examination of standardized driving practices and is applied to quantitatively assess the abnormality. Mathematical examinations are directed to check the viability of the proposed plot.

Md. Atiqur Rahman et.al [5] stated wellbeing and security in vehicle voyaging are a pre-prominent worry for all. With the quick urbanization and stunning development of transport networks like bike vehicles, wellbeing on the streets and security on the bicycle has arisen as a certain need for us. It has extended the pace of mishaps, which prompts a few harms with loss of lives. Much of the time, we can't ready to identify the mishap's area. A cap is a type of ensuring gear worn to be careful the head from wounds. All the more explicitly, the cap helps the skull in securing the mind. A brilliant protective cap can identify the mishap's areas likewise save lives and makes bike driving more secure from already. This system propounds a savvy protective cap framework to dodge the mishap. The framework separates into three sections cap circuit, auto circuit, and portable application. From the start, the head protector circuit has IR and liquor discovery sensor. The vehicle circuit has a 3-pivot accelerometer, Bluetooth module, hand-off, and load sensor. The cap circuit imparts a sign to the car circuit to begin if the protective cap is wearied and no liquor recognizes. At that point the vehicle circuit checks the status of the heap to begin. 3-pivot accelerometer detects crash or hit. In the wake of identifying a mishap versatile application sends the mishap area naturally to police and crisis contact number through the information base.

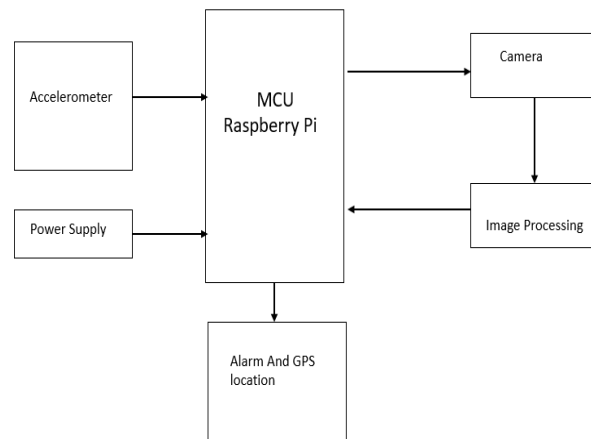
#### IV. EXISTING SYSTEM APPROACH

With an increment in populace, there is an expansion in the quantity of mishaps that happen each moment. These street mishaps are unusual. There are circumstances where a large portion of the mishaps couldn't be accounted for appropriately to close ambulances on schedule. In a large portion of the cases, there is the inaccessibility of crisis administrations which need giving the emergency treatment and ideal help which can prompt death toll by certain minutes. Henceforth, there is a need to build up a framework that takes into account every one of these issues and can adequately capacity to conquer the postpone time brought about by the clinical vehicles. The reason for this system is to present a structure utilizing IoT, which helps in recognizing auto collisions and telling them right away. This can be accomplished by coordinating shrewd sensors with a microcontroller inside the vehicle that can trigger at the hour of a mishap. Different modules like GPS and GSM are incorporated with the framework to get the area directions of the

mishaps and sending it to enlisted numbers and close by emergency vehicle to advise them about the mishap to acquire prompt assistance at the area.

### V. PROPOSED SYSTEM APPROACH

The accelerometer is able to detect the rash driving. An accelerometer measures speed variations of anything that it's mounted on by extracting cues from the vehicle's lateral and longitudinal accelerations. If the driving is reckless the designed system will detect the vibrations from the vehicle and then automatically invoke the camera. There are several different algorithms and methods for eye tracking, and monitoring. The vast majority of them somehow or another identify with highlights of the eye (regularly reflections from the eye) inside a video picture of the driver. The unique point of this undertaking was to utilize the retinal reflection as a way to finding the eyes on the face, and afterward utilizing the nonattendance of this reflection as a method of distinguishing when the eyes are shut. Applying this calculation on continuous video edges may help in the computation of eye conclusion period. Eye closure period for Drunk drivers are longer than normal blinking. So we will warn the driver as soon as abnormality in eye movements is detected.



**Fig.1 System Architecture of Proposed System**

◆ **Rash Driving:**

The accelerometer is able to detect the rash driving through calculating the x, y, and z coordinates of the motion of vehicle. Once any abnormal activity is identified the system triggers the camera module which then captures real-time images of the driver. If the drunken state is confirmed by image processing as well then it sends a notification to the respective person's app with a latency of less than a second. Through GPS the location of the vehicle is measured with an accuracy of 3 meters. Activities and location data are logged with a timestamp in the app to analyze in the future. Unlike most other proposed methods that use the phone's camera to detect drowsiness, in this proposed model a smart steering wheel encompasses both drowsiness detection and rash driving.

◆ **Drunk Detection:**

Since the proposed method uses cameras, it will work on all light conditions. The proposed model extracts features like the closing of eyelids and face orientation. With these features, the model is able to classify drunken person with better accuracy.

### VI. CONCLUSION

There are several different algorithms and methods for eye tracking, and monitoring. Most of them in some way relate to features of the eye (typically reflections from the eye) within a video Nowadays accidents are frequently increasing at a high rate due to careless driving which results in damage to one's life or worse, cause death image of the driver. As



per the survey, many accidents are caused due to rash driving under the influence of alcohol. A Drunk Driver System is a system which can reduce these accidents to some extent caused due to rash driving and unconsciousness induced by alcohol. Raspberry Pi will be set up properly for implementation. Several subjects will be taken to record the response and working of the system. The opening of eyes was indicated by circular shapes. If drunken state is detected, then circle does not appear indicating the closure of eye or drunken state of a driver. Results were shown with several photos with both eye opening and closing condition.

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