Rash Driving and Accidental Detection

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Abstract— Period of time abnormal driving behaviors observance could be a corner stone to improving driving safety. Existing works on driving behaviors observance using smart phones only offer a coarse-grained result, i.e. distinctive abnormal driving behaviors from traditional ones. to enhance drivers awareness of their driving habits thus as to stop potential car accidents, we need to think about a fine grained observance approach, that not only detects abnormal driving behaviors but also identifies specific forms of abnormal driving behaviors, i.e. Weaving, Swerving, side slipping, quick reverse, Turning with a large radius and fast braking. Through empirical studies of the 6-month driving traces collected from real driving environments, we discover that each one of the six forms of driving behaviors have their distinctive patterns on acceleration and orientation. Recognizing this observation, we have a tendency to additional propose a fine-grained abnormal Driving behavior Detection and identification system to perform real-time high correct abnormal driving behaviors observance using smart phone sensors. Propose system utilizes smartphone sensing of vehicle dynamics to determine driver phone use, which might facilitate several traffic safety applications. Our system uses embedded sensors in smartphones, i.e., accelerometers and gyroscopes, to capture variations in acceleration attributable to vehicle dynamics. These variations combined with angular speed will verify whether or not the accident occurred or not. Our low infrastructure approach is versatile with completely different driving speeds [1].

Key words: Driver Safety, Camera Sensing, Smartphone Sensing

I. INTRODUCTION

Road safety as an important area for research and action programmed has received a great deal of scientific attention in recent years. Progress has been made on several different fronts but in one area there would appear to be a serious lack of interest or, at the very least, a paucity of published information and informed debate. This area concerns the degree to which our thinking and hence our solutions are locked into a particular view of technology and society and thereby condemned to produce incremental improvements but no radical alteration in the magnitude or structure of the problem itself. In the case of road safety it can be argued that solutions which build on the acceptance of life motor car as a major and immutable technology will reinforce that position and generate a primary paradox: solutions designed to reduce a major negative effect of motorized transport contribute to the perpetuation of the circumstances which lead to road traffic accidents. Traffic accidents are a major public issue worldwide. The huge number of injuries and death as a result of road traffic accident uncovers the story of global crisis of road safety. Road collisions are the second leading cause of death for people between the ages of 5 and 29 and third leading cause for people between 30 and 44. As per statistical projection of traffic fatalities, the 2 year comparison of total driver participation in mortal crashes presented a 3 percent increases [2].

II. EXISTING SYSTEM

The automatic rash driving detection system is not present. Lots of accident happen due to rash driving. Existing works uses infrared sensors monitoring the driver's head movement to detect drowsy driving. Captures the driver's facial images using a camera to detect whether the driver is drowsy driving by image processing. GPS, cameras, alcohol sensor and accelerometer sensor are used to detect driver's status of drunk, fatigued, or reckless. However, the solutions all rely on pre-deployed infrastructures and additional hardware's that incur installation cost [3].

III. DISADVANTAGES OF EXISTING SYSTEM

- It is time Consuming
- Error-prone
- Required more time.
- Major cause of traffic accidents

IV. LITERATURE REVIEW

According to literature survey after studying different IEEE paper, collected some related papers and documents some of the point discussed here:

A. Mobile Phone Based Drunk Driving Detection

Author: Jiangpeng Dai, Jin Teng, Xiaole Bai, Zhaohui Shen,and Dong Xuan
Description: Drunk driving, or formally driving under the Influence (DUI) of alcohol, may be a major reason for traffic accidents throughout the planet. During this paper, we have a tendency to propose an extremely economical system geared toward early detection and alert of dangerous vehicle maneuvers generally associated with drunk driving. The complete resolution needs solely a portable placed in vehicle and with measuring device and orientation device. A program put in on the portable computers accelerations supported device readings, and compares them with typical drunk driving patterns extracted from real driving tests. Once any proof of drunk driving is gift, the portable can mechanically alert the driving force or decision the police for facilitate well before accident really happens. We have a tendency to implement the detection system on humanoid G1 phone and have it tested with totally different sorts of driving behaviors. The results show that the system achieves high accuracy and energy potency.

B. Context Aware Driver Behaviour Detection System in Intelligent Transportation Systems (ITS)

Authors: Saif Al-Sultan, Ali H. Al-Bayatti and Hussien Zedan
Description: Vehicle accidental Networks (VANET) emerged as Associate in Nursing application of Mobile

accidental Networks (MANET), that use Dedicated Short range Communication (DSRC) to permit vehicles in shut proximity to speak with one another, or to speak with edge instrumentation. Applying wireless access technology in conveyance environments has LED to the development of road safety and a discount within the range of fatalities caused by road accidents, through the event of road safety applications and facilitating info sharing between moving vehicles relating to the road. This paper focuses on developing a completely unique and non-intrusive driver behavior notice ion system employing a context-aware system in VANET to detect abnormal behaviors exhibited by drivers, and to warn alternative vehicles on the road thus on stop accidents from happening. A five-layer context- aware design is planned that is ready to gather discourse data regarding the driving setting, perform reasoning regarding sure and unsure discourse data and react upon that data. A probabilistic model supported Dynamic Bayesian Networks (DBN) for real time inferring four sorts of driving behavior (normal, drunk, reckless and fatigue) by combining discourse data regarding the driving force, vehicle and therefore the setting is conferred. The dynamic behavior model can capture the static and thus the temporal aspects related to the behavior of the drive, thus, leading to robust and proper behavior detection. The analysis of behavior detection victimization artificial data proves the validity of our model and so the importance of similarly as discourse information regarding the drive, the vehicle and therefore the setting

C. Senspeed: Sensing Driving Conditions to Estimate Vehicle Speed In Urban Environments

Authors: Haofu Han, Jiadi Yu, Hongzi Zhu, Yingying Chen, Jie Yang, Yanmin Zhu, Guangtao Xue and Minglu Li
Description: Acquiring instant vehicle speed is fascinating and a corner stone to several necessary transport applications. This paper utilizes good phone sensors to estimate the vehicle speed, particularly once GPS is out of stock or inaccurate in urban environments. Specifically, we have a tendency to estimate the vehicle speed by group action the accelerometer's readings over time and notice the acceleration errors will cause massive deviations between the calculable speed and therefore the real one. Any analysis shows that the changes of acceleration errors square measure terribly tiny over time which might be corrected at some points, referred to as reference points, wherever actuality vehicle speed is understood. Recognizing this observation, we have a tendency to propose associate correct vehicle speed estimation system, SenSpeed,\ that senses natural driving conditions in urban environments as well as creating turns stopping and spending through uneven road surfaces, to derive reference points and any eliminates the speed estimation deviations caused by acceleration errors.

D. Driving Behavior Analysis with Smart Phones: Insights from a Controlled Field Study

Author: Johannes Paefgen, Flavius Kehr, Yudan Zhai, Florian Michahelles.
Description: We measure a mobile application that assesses driving behavior supported in vehicle acceleration measurements and offers corresponding feedback to drivers. Within the insurance business, such applications have recently gained traction as a viable various to the watching of drivers via "black boxes" put in in vehicles, which lacks interaction opportunities and is perceived as privacy intrusive by policy holders. However, cause uncertainty and different Noise causing factors build good phones probably less reliable as sensing element platforms. We have a tendency to so compare important driving events generated by a Smartphone with reference measurements from a vehicle mounted foreign terrorist organization in a very controlled field study. The study was designed to capture driver variability below universe conditions, whereas minimizing the influence of external factors. We discover that the mobile measurements tend to overestimate important driving events, probably because of deviation from the tag initial device cause. Whereas weather and daytime don't seem to influence event counts, road sort could be a vital issue that's not thought-about in most current state of-the art implementations

V. PROPOSE SYSTEM

Propose system detect the rash driving. If any person detected as rash driver then system will inform to nearest distance police station about driver. Propose system utilize smart phones accelerometer to get the reading. Accelerometer provide value of X, Y, Z as per the motion of mobile. According to reading system classify the driver is rash driver or not.

VI. SYSTEM ARCHITECTURE

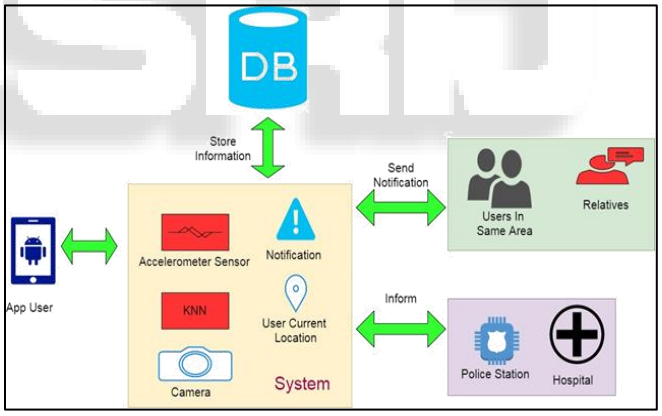

Fig. 4.1: System Architecture

VII. CONCLUSION AND FUTURE SCOPE

Survey and Analysis of the proposed application are expected to be able to correctly fulfill its purpose within a short time period. The methodology will take minimum amount of time required to perform all the tasks, including the delivery of an SMS with the accident details, followed by providing the nearby police station and hospital details and sending them an alert message of the user accident with exact location of user.

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