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REVIEW ARTICLE

INTELLIGENT VEHICLE INFRASTRUCTURE SAFETY SYSTEM, FOR SUSTAINABLE MOBILITY OVER COGNITIVE DISTRACTION ON UNPREDICTABLE EVENTS

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ABSTRACT

In today's scenario, increase in growth of staffs and students population, leading to an insufficient transportation facilities. Staffs and students needs to take college bus as their transport source as they need to travel a long route. But the problem is, there is no easy way to know with how many people a college bus takes ride. This paper is to create a college bus transport management system where a travel faculty and students will get college bus information. The Static transport management system is done as a solution for the educational organization to over come problem like facing insufficient bus to travel, to identify students who have paid and unpaid bus fair. Data are maintained manually and it is hard to track and maintain. This paper is a sustainable mobility and way to maintain record of faculty and students of the college bus.

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INTRODUCTION

The major reason that data mining has attracted a great deal of attention in the transportation service system in recent years is due to the wide availability of huge amounts of data and the imminent need for turning such data into useful transportation information and Knowledge. The transportation information and knowledge gained can be used for applications ranging from transportation operation management, transportation control, and transportation analysis, to transportation design and science exploration. An evolution path has been witnessed in the database in the development of much functionality: data collection and database creation, data management (including data storage and retrieval, and database transaction and data and processing), analysis understanding (involving data warehousing and data mining). With numerous database system offering query and transaction processing as common proactive, data analysis and understanding has naturally become the next target.

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Accordingly clarifying root cause of traffic accidents is one of most essential challenge for reduction of the number of traffic accidents. The Data mining provides information of high risk point of imminent traffic accidents. The concept focused driver's cognitive distraction, which was replicated by using a driving simulator. Cognitive loads were imposed by using conversation as well as arithmetic task. As an alternative characteristic of driver's cognitive distraction, this study adopted physiological information which were movements of eyes and head, and heart rate RRI from Electrocardiogram (ECG) waveform. Finally this study proposed a driver's psychosomatic adaptive driving support safety function in to enhance safety performance of vehicle-infrastructure safety system which may bring more comfortable and safer transportation. The adaption scheme is implemented in the field of educational organization that has, major issues in the transportation. One of the most used means of communication in roadways and the college bus is given a prime form. An organization will have the minimum of population of 280 designated staffs and 6000 students at an average increase of 600 students in a year. The organization provides the vehicle with 'n' number of bus according to the available count passengers.

There are situations where, the particular bus is not available and it is not known to the transport users. In such cases they need to find an alternate bus of the same route which in turn leads to over load. The other case is that, there arises a sudden problem in bus such as breakdown or puncture, where the passengers may not know who waits for that particular bus. The management must provide a solution for the above cases. The organization has students of both day scholars and hostellers. The day scholars will take the college transportation as their source mostly. Some students may not have done their payment and come leisurely in the transport. This may not be known to the management, and thus leading a problem in scheduling of bus. Since, the management will provide transport facility as per the records; the passengers who have done their payment also get affected.

The Static transport management system aims to solve the above problems by providing proper details of college transportation to the transport users. It provides an alternate solution to the passengers if there arises any problem on transportation. Need not take ride many times due to increase in population. Rides can be taken as per scheduling, on feeding proper records of staffs and students. Thus the applications help you in seeing people and journey schedules and make an informed decision about the transportation.

RELATED WORKS

According to the data mining (Xin Wang, 2017) through Internet, top three psychosomatic states just before the traffic incident were "*Haste*" (22.0%), "*Distraction*" (21.9%), and "*Normal*" (14.9%) as well as "*Drowsiness*" (3.8%) as shown in below Figure. That of direct interview were "*Haste*" (28.0%), "*Distraction*"(24.7%), and "*Normal*"(10.8%) as well as "*Drowsiness*"(7.5%). The two results agreed in descending order of component and mostly agreed constituent ratio. From the result detecting the driver's psychosomatic state just before traffic incident is indispensable for establishing countermeasures to reduce the number of the traffic accident. Recently driver's psychosomatic state adoptive type preventive safety function has been widely developed in the production stage. Therefore this study focused to create a method to detect driver's cognitive distraction

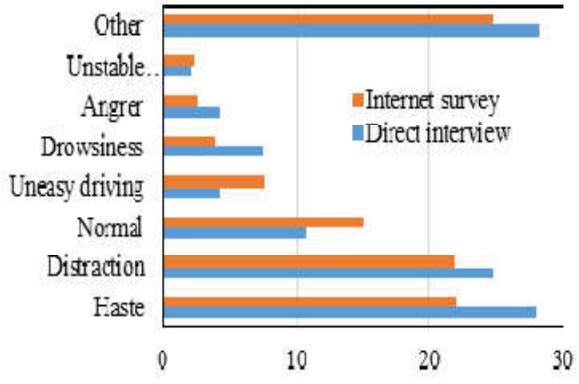

Fig. 1. Driver's psychosomatic states (Units: %)

Intelligent Transportation Systems (Junping Zhang *et al*., 2011) are improved by the performance of transportation systems, enhancing travel security, and providing more choices to travelers. It can collect more data from a variety of sources and can be processed into various forms of different stakeholders. The availability of data can be lead to revolution in ITS development, changing an ITS from a conventional technology-driven system into a more powerful multi functional data-driven intelligent transportation systems. The studies (Sayanan Sivaraman, 2013) deals with the literature in on-road vision-based vehicle detection, tracking, and behavior understanding which places vision-based vehicle detection in the context of sensor-based on-road surround analysis, more advance in vehicle detection, discussing monocular and sterio vision. Next is about vision-based vehicle tracking in the monocular and sterio-vision domains, analyzing filtering, estimation and dynamic models. Then it provides intelligent vehicles research concerned with spatiotemporal measurements, trajectories and various features to analyze the road behavior.

The information about the traffic flow are extracted from a wide range of applications, including traffic forecasting, vehicle navigation devices such as GPS, vehicle routing and congestion based devices (Afshin Abadi *et al*., 2015). It uses a dynamic traffic simulator to generate flows in all links using available traffic information, estimated demand and historical data available from links equipped with sensors. They are implementing a methodology to add the origin-to-destination matrices driving the simulator. It uses a real time and estimated traffic flow data to predict the traffic flows on each link up to 30 min ahead. The autoregressive model used as the prediction algorithm that adapts itself to unpredictable events. The studies (Jennifer, 2005) deals with the data, that can be analyzed in two ways. Analysis uses the features from 5-min intervals of data during the rest in highway, and city driving to distinguish three levels of driver stress with an accuracy of over 97% across multiple drivers and driving days. The results show that the case study of driver's has undergone through various correlated study of practical difficulty levels. Physiological sensing is one method of accomplishing this goal. Research (Samuel Woo *et al*., 2015) consist of a long-range wireless attack, which is physically possible using a real vehicle and malicious smart phone application in a connected car environment. Evaluate the feasibility of the proposed security protocol using CANoe software and a DSP-F28335 microcontroller. The results show is more efficient with respect authentication delay and communication load than the existing system

IMPLEMENTATION

It makes the new system available to a prepared set of users (the deployment), and positioning on-going support and maintenance of the system within the Performing Organization (the transition). At a final level , deploying the system consist of all executing steps necessary to educate the Consumers on the use of the new system, placing the newly developed system into production, confirming the required data is available and accurate at the beginning of operation, and validating that business functions that interact with the system are functioning clearly. The transportation scheme supports responsibilities that involves changing from a system *development* to a system *support and maintenance* mode of operation, Implementation consists of – Planning, Training, System design, Changeover planning. Planning is the first task in the system implementation. Planning means deciding on the method and the time scale to be adopted. At the time of implementation the system is supported by different level of environmental standards.

They are confirmed to practical problem of controlling various activities of people outside their own data processing departments. The transport officer is in charge of implementation and coordinating the committee. The committee considers ideas, problems and complaints of user department, it must also consider; Adoption of system environment. Authorization and distribution of resources, Consultation with unions and resources available, Standby facilities and channels of communication.

Detailed descriptions of these roles can be found in the Introductions to Sections I and III.

- Admin manager
- Business Authentication
- Data flow/ Congestion Information
- Transport Facilitator.
- Web Designer
- Peripherals (HW/SW, LAN/WAN, TelCom)
- Information Security Officer (ISO)
- Technical Support
- Customer Representative
- Consumer

The purpose of System Implementation is to take all possible steps to ensure that the upcoming system deployment and transition occurs smoothly, efficiently, and flawlessly. It is necessary to ensure that the community is best ranked to utilize the system once deployment efforts have been validated. The necessary training activities must be scheduled and coordinated. During System Implementation ensure that everyone involved be absolutely synchronized with each other and the deployment plan. Often the performance of deployment efforts impacts many of the Performing Organization's normal business operations.

Conclusion

The "Transport Management System" has been developed to satisfy all proposed requirements. The system is highly scalable and user friendly. Almost all the system objectives have been met. The system has been tested under all criteria. The system minimizes the problem arising in the existing manual system and it eliminates the human errors.

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