International Journal on Recent Researches in Science, Engineering & Technology (IJRRSET)
A Journal Established in early 2000 as National journal and upgraded to International journal in 2013 and is in existence for the last 10 years. It is run by Retired Professors from NIT, Trichy. Journal Indexed in JIR, DIIF and SJIF.
Research Paper
Available online at: www.jrrset.com

ISSN (Print) : 2347-6729
ISSN (Online) : 2348-3105

Volume 7, Issue 4
April 2019.
JIR IF : 2.54
SJIF IF : 4.334
Cosmos: 5.395

Received on: 22.03.2019 Published on: 14.04.2019 Pages : 22 - 25

REAL TIME MONITORING AND VALIDATION OF DRIVING PATTERN RECOGNITION SYSTEM

Sivakumar.S[1], Bavadharini.M[2] , Dhivyadarshini.J[3] , Durga.S[4] , Nathiya.K[5]
[1]Assistant Professor, [2,3,4,5]UG Scholars
Department of Electronics and Communication Engineering
Kings College Of Engineering, Punalkulam. Tamil Nadu
susibava98@gmail.com

ABSTRACT

This project focuses on automatic riding pattern recognition based on a machine-learning approach. The proposed methodology considers the multivariate aspect of the data and the mechanical correlation between the different parameters measured on a two wheeler. Real experiments are conducted by different subjects driving two wheelers instrumented with accelerometers, gyroscopes, and vehicle sensors. The riding pattern recognition problem is then formulated as a classification problem to identify the class of the riding pattern from the measurements provided by 3-D accelerometer/gyroscope sensors mounted on the motor cycle. This project also focuses on implementing Co emission monitoring and reporting system in the Transport vehicle.

INTRODUCTION

In 2014 alone, above six million two wheeler accidents happened of which 27% issued in injury or death. Between the years 2014 to 2015, vehicular accidents elevated by 3.8% and fatal accidents elevated by 7%. According to a research which enquired 723 accidents and it stated that the rider's behavioral mistake pitched in 99% of these accidents.

In India as per Motor Vehicle Act 1988, No person shall drive(Ride) a motor vehicle in any public place unless he holds a valid driving (Riding) license issued to him to drive a vehicle of authorized category by the by individual state via their Regional Transport Authorities or Offices. Driver behavior and driver errors are major causes of vehicular accidents. Therefore, understanding and modeling driver behavior has attracted much attention from researchers. The proposed driving behavior models have different purposes; some of them have tried to assess the vehicle dynamics or to monitor the driver status, whereas others have tried to better understand the underlying dynamics in driver behavior. The need to control the emissions from automobiles gave rise to the computerization of the automobile. Hydrocarbons, carbon monoxide and oxides of nitrogen are created during the combustion process and are emitted into the atmosphere from the tail pipe. There are also hydrocarbons emitted as a result of vaporization of gasoline and from the crankcase of the automobile.

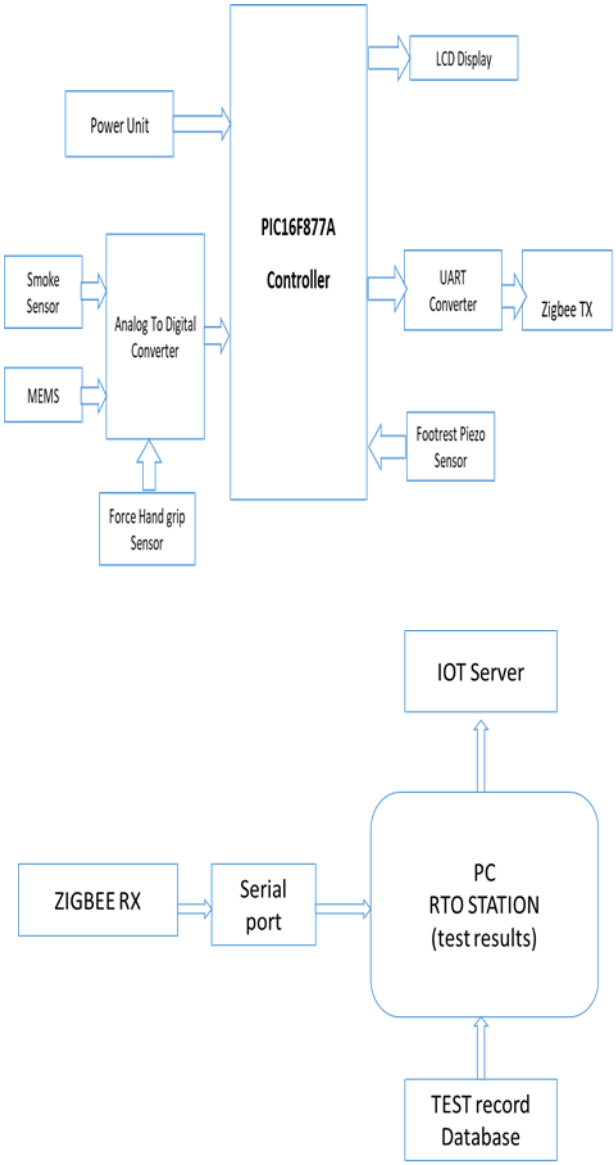
Wireless Integrated Network Sensors (WINS) combine sensing, signal processing, decision capability, and wireless networking capability called zigbee which is a compact, low power system. On a local, wide-area scale, battlefield situational awareness will provide personnel health monitoring and enhance security and efficiency. Also, on a metropolitan scale, new traffic, security, emergency, and disaster recovery services will be enabled by WINS. Here first it identifies the node where the harmonic signals are produced by the strange objects and the intensity of the signal will be collected .The signal will be sent to the main node. The processing of the regular interval data from the nodes will be analyzed and based on the intensity of the signals and the

direction of the detecting nodes gets changing will be observed and the results will be sent to the satellite communication system.

EXISTING SYSTEM

For all bike, to pass in driving test, he/she drive a bike in path designed as no. 8 in between the 20 meter distance, for turning he/she should put a indicator as well as show a hand signal and to stop the bike we raise our hand above the head. This should be done without our legs touching the ground. The motorcycle driving test is a standard test and all test centers use the same testing procedures. The test is designed to determine that you: Know the Rules of the Road and possess the knowledge and skill to drive competently in accordance with those rules. Drive with proper regard for the safety and convenience of other road users.

PROPOSED DESIGN



HARDWARE DESCRIPTION

1. SMOKE SENSOR

This is a simple-to-use liquefied petroleum gas(LPG) sensor, suitable for sensing LPG (composed of mostly propane and butane) concentrations in the air. The MQ-6 can detect gas concentrations anywhere from 200 to 10000ppm.liquefied petroleum gas(LPG). This current is known as heating current through it, the gases coming

close to the sensing element get ionized and are absorbed by the sensing element. This changes the resistance of the sensing element which alters the value of the current going out of it.

2. MEMS SENSOR

The ADXL335 is a triple axis MEMS accelerometer with extremely low noise and power consumption only 320UA!the sensor has a full sensing range of +/- 3g. there is no on-board regulation,provided power should be between1.8 and 3.6 VDC.

3. FORCE HAND GRIP SENSOR

This Force Hand grip Sensor is a small force sensitive resistor. It has a 0.5" diameter active sensing area. This FSR will vary its resistance depending on how much pressure is being applied to the sensing area. The harder the force, the lower the resistance. When no pressure is being applied to the FSR its resistance will be larger than 1MΩ. This FSR can sense applied force anywhere in the range of 100g-10kg. There is a peel-and-stick rubber backing on the other side of the sensing area to mount the FSR. These sensors are simple to set up and great for sensing pressure, but they aren't incredibly accurate.

4. FOOT REST PIEZO SENSOR

A sensor that utilizes the piezoelectric effect, to measure changes in acceleration, strain, pressure, and force by converting them into electrical charge is called as a piezoelectric sensor. Piezo is a Greek word which means ‘press’ or ‘squeeze’. Piezoelectric effect causes the occurrence of electric dipole moments in solids due to the pressure applied to certain solid materials such as piezoelectric crystals, ceramics, bone, DNA, and some proteins that generates electric charge.

CONCLUSION

This article offers a review of the recent research and development efforts on driving style characterization and recognition as well as their applications to intelligent vehicle control. This proposed project is also aims at monitoring the Emission of CO constraints from the vehicle and report it to the RTO station with CO sensor.The results can be used to determine, from among the classified situations, those that are time-critical events and/or near misses.

REFERENCES

[1] C.N. E. Anagnostopoulos, I. E. Anagnostopoulos, V. Loumos, and E. Kayafas, “A license plate-recognition algorithm for intelligent transportation system applications,”IEEE Trans. Intell. Transp. Syst., vol. 7, no. 3, pp. 377–392, Sep. 2006.

[2] V.Abolghasemi and A. Ahmadyfard, "An edge-based color-aided method for license plate detection," Image Vis. Comput., vol. 27, no. 8, pp. 1134–1142, 2009.
[3] O.Bulan, S. Wshah, P. Ramesh, V. Kozitsky, and A. Burry, "Usdot number localization and recognition from vehicle side-view nir images," in Proc. IEEE Conf. Comput. Vis. Pattern Recognit. Workshops, Jan. 2015, pp. 91–96.
[4] A.Corti.,C. Ongini.,M.Tanelli.,and S.M.Savaresi., (2013), "Quantitative driving style estimation for energy-orientedapplications in road vehicles," IEEE International Conference on Systems, Man, and Cybernetics, pp. 3710-3715.
[5] Z.Constantinescu, C. Marinoiu and M.Vladoiu, (2010),Driving style analysis using data mining techniques, International Journal of Computers, Communications & Control, Vol. 5, No. 5, pp. 654-663.
[6] S.Du, M.Ibrahim, M.Shehata, and W.Badawy, "Automatic license plate recognition (ALPR): A state-of-the-art review," IEEE Trans. Circuits Syst. Video Technol., vol. 23, no. 2, pp. 311–325, Feb. 2013.
[7] Y.Dong., Hu. Z., K.Uchimura., andN.Murayama,. (2011), "Driver inattention monitoring system for intelligent vehicles: a review,"IEEE Transactions on Intelligent Transportation Systems, Vol. 12, No. 2, pp. 596-614.
[8] E.Ericsson, (2001), Independent driving pattern factors and their influence onfuel-use and exhaust emission factors, Transportation Research Part D: Transport and Environment, Vol. 6, No. 5, pp. 325-345.
[9] M.Fazeen, B. Gozick, R. Dantu, M. Bhukhiya and M. Gonzalez, (2012), "Safe driving using mobile phones,"IEEE Transactions on Intelligent Transportation Systems,Vol. 13, No. 3, pp. 1462-1468.
[10] X.Huang.,Y. Tan., and He, X., (2011), "An intelligent multi-featurestatistical approach for the discrimination of driving conditions of a hybrid electric vehicle," IEEE Transactions on Intelligent Transportation Systems, Vol. 12, No. 2, pp. 453 – 465.
[11] D.Johnson and M. Trivedi, (2010), "Driving style recognition using a smartphone as a sensor platform," IEEE Conference on Intelligent Transportation Systems, pp. 1609-1615.
[12] C.Miyajima, Y. Nishiwaki, K. Ozawa, T. Wakita, K. Itou, K. Takeda and F. Itakura, (2010), "Driver modeling based on driving behavior and its evaluation in driver identification,"Proceedings of the IEEE, Vol. 95, No. 2, pp. 427-437.
[13] Nechyba, M.C. and Xu, Y., (1996), On the fidelity of human skill models, IEEE International Conference in Robotics and Automation, Vol. 3, pp. 2688-2693.
[14] Rossetti. R. J., Almeida.J. E., Kokkinogenis.Z., and Gonçalves. J., (2013), "Playing transportation seriously: Applications of serious games to artificial transportation systems," IEEE Intelligent Systems, No. 4, pp. 104-112.