DESIGN OF BUS TRACKING AND FUEL MONITORING SYSTEM

Ch. V. Lavanya [1], S. Sarath Chandra [2]

[1] PG Student (DECS), Dept of ECE, QIS College of Engineering &Technology, Ongole, Andhra Pradesh, India.

[2]Associate Professor, Dept of ECE, QIS College of Engineering &Technology, Ongole, Andhra Pradesh, India.

I. ABSTRACT

In today's world, actual record of fuel filled and fuel consumption in vehicles is not maintained. It results in a financial loss. To avoid this we are implementing a microcontroller based fuel monitoring and vehicle tracking system. In this paper, the implementation of embedded control system based on the microcontroller is presented. The embedded control system can achieve many tasks of the effective fleet management, such as fuel monitoring, vehicle tracking. Using GPS vehicle tracking technology Fuel monitoring have been the major problem that most of bus companies looking to solve. This paper developed a bus tracking and monitoring the fuel and speed system to provide a facility for the management requirements by the administrator using GPS and GSM Technology.

Keywords: *microcontroller, GPS, GSM, fuel level indicator.*

II. INTRODUCTION

The challenges of successful fuel monitoring involve efficient and specific design, and a commitment to implementation of the monitoring project, from data collection to reporting and using results. tracking is the use of GPS technology to identify, locate and maintain contact reports with one or more fleet vehicles. Implementing real-time vehicle tracking as part of a commercial company's mobile resource management policy is essential for comprehensive operational control driver security and fuel savings. Rising fuel costs constantly challenge fleet operators to maintain movement of vehicles and monitor driver behavior to avoid delaying traffic conditions by either, combining deliveries, reconfiguring routes or rescheduling timetables. This aims to maximize the number of deliveries while minimizing time and distance Fuel monitoring system help the administrator to know the exact amount of fuel content of the bus, so fuel theft could be avoided and administrator could maintain the fuel more efficiently. In addition to that alcohol sensor is used in order to sense the

breath of the driver to sense whether he has drunken or not. The design and development of a vehicle tracking and fuel monitoring system especially useful for mining in real-time has been reported in this paper. The system principally monitors vehicle moving and tracking such as position, and speed and subsequently identifies alcohol detection. A lot of vehicle theft occur and accident due to over speed, alcohol drunken by driver. GPS is increasingly being used in vehicle tracking and monitoring services. To resolve the problems like avoid speed and collision, traffic jams ARM processor based vehicle monitoring is implemented as well providing information for the vehicle owner. The system has been designed for ARM processor vehicle tracking and monitoring will provide effective and real time vehicle location using GPS and GSM. A GPS based vehicle tracking will inform where you vehicle is and where it has been and how long it has been. The system uses geographic positions and time information from the global Positioning Satellites. The system has on board which resides in the vehicle to be tracked and a Base Station that monitor data from the various vehicles. This project ability is accurately detected the vehicle and monitoring the speed for avoiding collisions.

III. BLOCK DIAGRAM

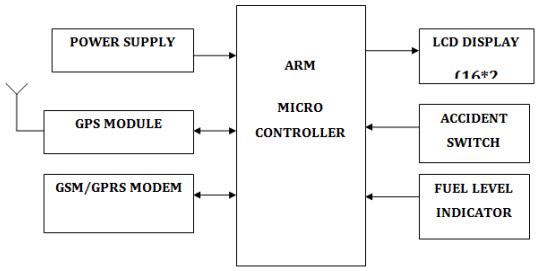

Fig . System block diagram

System Overview

Power Supply:

This section is meant for supplying Power to all the sections mentioned above. It basically consists of a Transformer to step down the 230V ac to 9V ac followed by diodes. Here diodes are used to rectify the ac to dc. After rectification the obtained rippled dc is filtered using a capacitor Filter. A positive voltage regulator is used to regulate the obtained dc voltage.

Microcontroller:

This section forms the control unit of the whole project. This section basically consists of a Microcontroller with its associated circuitry like Crystal with capacitors, Reset circuitry, Pull up resistors (if needed) and so on. The Microcontroller forms the heart of the project because it controls the devices being interfaced and communicates with the devices according to the program being written.

LCD Display:

This section is basically meant to show up the status of the project. This project makes use of Liquid Crystal Display to display / prompt for necessary information.

GPS modem:

A GPS modem is used to get the signals and receive the signals from the satellites. In this project, GPS modem get the signals from the satellites and those are given to the microcontroller. The signals may be in the form of the coordinates; these are represented in form of the latitudes, longitudes and altitudes.

GSM modem Section:

This section consists of a GSM modem. The modem will communicate with microcontroller using serial communication. The modem is interfaced to microcontroller using MAX 232, a serial driver. The Global System for Mobile Communications is a TDMA based digital wireless network technology that is used for communication between the cellular devices. GSM phones make use of a SIM card to identify the user's account.

Fuel level indicator:

The sensor used for measurement of fluid levels is called a level sensor. The sensing probe element consists of a special wire cable which is capable of accurately sensing the surface level of nearly any fluid, including water, saltwater, and oils.

IV. CONCLUSION

This paper offers a smart design of tracking and monitoring and fuel monitoring system which helps the bus companies to provide high quality of service. This design can provide the location of the busses etc. of the service with an error less than 10m in the case of slow speed and clear environment and the system give the accurate arrival time of the bus and provide the location of the bus in Google map for both user and administrator. This system reduces the waiting time of remote users for bus and provides bus tracking at any location, management and fuel monitoring.

V. REFERENCES

[1] J. C. Williams, “2012 Sleep in America poll: Transportation workers ‘sleep,” Nat. Sleep Foundation, Arlington, VA, USA, Tech. Rep., 2012.

[2] T. A. Ranney, E. Mazzae, R. Garrot, and M. J. Goodman, “NHTSA driver distraction research: Past, present, and future,” Nat. Highway Traffic Safety Admin., East Liberty, OH, USA, Tech. Rep., 2000.

[3] R. N. Khushaba, S. Kodagoda, S. Lal, and G. Dissanayake, “Driver drowsiness classification using fuzzy wavelet-packet-based feature extraction algorithm,” IEEE Trans. Biomed. Eng., vol. 58, no. 1, pp. 121–131, Jan. 2011.

[4] Y. Liang, M. L. Reyes, and J. D. Lee, "Real-time detection of driver cognitive distraction using support vector machines," IEEE Trans. Transp.Syst., vol. 8, no. 2, pp. 340–350, Jun. 2007.

[5] R. I. Hammoud, G.Witt, R. Dufour, A. Wilhelm, and T. Newman, "On driver eye closure recognition for commercial vehicles," SAE Int. J. Commercial Veh., vol. 1, no. 1, pp. 454–463, Apr. 2009.

[6] T. Moriyama, T. Kanade, J. Xiao, and J. F. Cohn, "Meticulously detailed eye region model and its application to analysis of facial features," IEEE Trans. Pattern Anal. Mach. Intell., vol. 28, no. 5, pp. 738–752, May 2006.

[7] Y. Dong, Z. Hu, K. Uchimura, and N. Murayama, "Driver inattention monitoring system for intelligent vehicles: A review," IEEE Trans.Transp. Syst., vol. 12, no. 2, pp. 596–614, Jun. 2011.

[8] D. DeMenthon and L. S. Davis, "Model-based object pose in 25 lines of code," Int. J. Comput. Vis., vol. 15, no. 1/2, pp. 123–141, Jun. 1995.

[9] B. D. Lucas and T. Kanade, "An iterative image registration technique with an application to stereo vision," in Proc. Int. Joint Conf. Artif. Intell. 1981, pp. 674–679.

[10] J. Shi and C. Tomasi, "Good features to track," in Proc. IEEE Conf.Comput. Vis. Pattern Recognit., 1994, pp. 593–600.

[11] G. G. Slabaugh, "Computing Euler angles from a rotation matrix," City Univ. London, London, U.K., Tech. Rep., 1999.

[12] M. La Cascia, S. Sclaro, and V. Athitsos, "Fast, reliable head tracking under varying illumination: An approach based on registration of texture mapped 3D models," IEEE Trans. Pattern Anal. Mach. Intell., vol. 22, no. 4, pp. 322–336, Apr. 2000.