

Review on Vehicle Monitoring Security

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Abstract

It is discovered that the majority of the accidents occur thanks to the driver's ignorance of traffic and safety rules. It's an observe for the drivers to drive the vehicle on the far side permissible limits. Looking on the parcel, and alternative conditions, speed restrictions could also be obligatory on drivers from time to time. Therefore, a system observation the speed and alternative want d vehicle parameters is put in within the vehicle to warn the motive force befittingly and intervene to regulate if necessary. One might not understand the instant position of a vehicle and it's time of arrival. Generally, the truck operators rely on intermittent telephone calls created by the drivers .To overcome such issues, an automatic observation system is established with observation stationslocatedat vital major junctions, cities through that the vehicles ply. Because the vehicle approaches a observation station, it's to mechanically establish itself and transfer crucial knowledge concerning the vehicle and operative conditions. The observation station will send changed management parameters and tips to the vehicle driver. For this purpose, we'd like a RF (radio frequency) transceiver system. In general, vehicle observation, chase and such activities square measure done victimisation separate systems and that they need some mechanical force as input. Speed is monitored victimisation meter and for dominant mechanical force is needed to decelerate it. Fuel level observation, proximity detection, battery observation, etc needs separate system. This paper presents a micro-controller-based management and observation system. Usually we'd like to use additional RF building blocks to produce RF link increasing the system quality. In such cases, a PSOC (Programmable System-On-Chip) micro-controller is utilized in place of standard approach. During this system, at first a building block is wont to monitor the standing of car and store it in memory. Then, same building block are organized as a receiver and also the system appearance for an approaching observation station. An equivalent building block is organized as transmitter and wont to transfer the vehicle info.

Keywords: Vehicle, Speed, PSOC, management, monitoring system

INTRODUCTION

The vehicle observance system will be simply enforced by victimization PSOC (Programmable system-on-chip). As aforesaid on top of, it will be dynamically reconfigured by fitly programming at the run time. However, this programming will be done by victimization high level language like 'C' with that most of the hardware designers would be acquainted. This makes 'C' the tongue for system-on-chip. a moment pursuit system is required for vehicles carrying combustible fuels, explosives, etc. in such cases GPS (Global

Positioning System) will be used additional effectively. This is often aiming to be costlier. This paper presents price effective and additional compact instrumentation for numerous applications. associate degree automatic observance system for vehicles will be established with observance stations set at major junctions, cities through that the vehicle ply. because the vehicle approach a observance station, it's to mechanically determine itself and transfer essential knowledge regarding the vehicle and operative conditions like temperature,

speed, fuel, battery indication, agent level etc. Of all the applications of GPS, Vehicle pursuit and direction systems have brought this technology to the everyday lifetime of human. Nowadays GPS fitted cars, ambulances, fleets and police vehicles are unit common sights on the roads of developed countries.

Known by several names like Automatic Vehicle Locating System (AVLS), Vehicle trailing and data System (VTIS), Mobile Asset Management System (MAMS), these systems supply a good tool for up the operational potency and utilization of the vehicles. GPS is employed within the vehicles for each trailing and navigation. Trailing systems change a base station to stay track of the vehicles while not the intervention of the driving force whereas navigation system helps the driving force to succeed in the destination. Whether or not navigation system or trailing system, the design is additional or less similar. The navigation system can have convenient, sometimes a graphic show for the driving force that isn't required for the trailing system. Vehicle trailing systems mix variety of well-developed technologies. To design the VMSS system, we tend to combined the GPSs ability to pin-point location at the side of the power of the world System for Mobile Communications (GSM) to speak with a sway center in a very wireless fashion. The system includes GPS-GSM modules and a base station referred to as the center. Allow us to concisely make a case for however VMSS works. So as to observe the vehicle, it's equipped with a GPS-GSM VMSS system. It receives GPS signals from satellites, computes the placement info, and so sends it to the center. With the vehicle location info, the center displays all of the vehicle positions on associate electronic map so as to simply monitor and management their routes. Besides trailing management, the center can even maintain wireless communication with the GPS units to

produce different services like alarms, standing management, and system updates. The planning takes into thought necessary factors concerning each position and digital communication. Thus, the project integrates location determination (GPS) and cellular (GSM) 2 distinct and powerful technologies in a very single system.

Vehicle Monitoring and Security System design VMSS relies on a PIC microcontroller-based system equipped with a GPS receiver and a GSM Module in operation within the 900 mhz band. We tend to housed the components in one tiny plastic unit, that was then mounted on the vehicle and connected to GPS and GSM antennas. The position, identity, heading, and speed area unit transmitted either mechanically at user-defined time intervals or once a definite event happens with an allotted message (e.g.; accident, alert, or leaving/entering an admittible geographical area). The GPS Module outputs the vehicle location data like meridian, latitude, direction, and greenwich time each 5 minutes. The GSM wireless communications operate relies on a GSM network established in an exceedingly valid region and with a sound service supplier. Via the SMS provided by the GSM network, the placement data and also the standing of the GPS-GSM VMSS area unit sent to the centre. Meanwhile, the VMSS receives the management data from the centre via a similar SMS. Next, the GPS-GSM VMSS sends the data hold on within the microcontroller via an RS-232 interface. There are a unit 2 ways in which to use the VMSS alarm operate, which may be meaning by either a buzzer or conferred on digital display. The primary manner is to receive the command from the centre; second manner is to manually send the alarm data to the management center with the push of a button. The base station consists of telephone circuit modem(s) and GIS digital computer. The data regarding the vehicle is received at a

base station and is then displayed on a computer primarily based map. Vehicle data are often viewed on electronic maps via the web or specialised software system. Geographic data Systems (GIS) provides a current, spatial, visual illustration of transit operations. It's a special variety of computerised management system during which geographic databases area unit associated with one via a typical set location coordinates.



Fig1: Stages of Vehicle Monitoring and Security System

STAGE 1

Driver starts his trip from the transport office. VMSS transmits the Driver I.D and the Vehicle I.D along with the position of the vehicle to the base station.

Stage 1 of Vehicle Monitoring and Security System

Stage 1 of Vehicle Monitoring and Security System

STAGE 2

Taxi picks up the employee/passenger from their residence. VMSS transmits the passenger I.D and therefore the Vehicle I.D along side the position of the vehicle to the bottom station. Thus base station are going to be ready to keep a track of the vehicle and so the employee/passenger.

STAGE 3

Taxi drops the employee/passenger to the work. VMSS transmits the rider I.D and therefore the Vehicle I.D along side the position of the vehicle to the bottom station.

Stage 3 of Vehicle Monitoring and Security System

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STAGE 4:

Taxi picks the employee/passenger from the work. VMSS transmits the rider I.D and therefore the Vehicle I.D along side the position of the vehicle to the bottom station. Thus this permits the bottom station to estimate the time if needed and conjointly keep a track of the vehicle, rider and therefore the driver.

STAGE 5

Taxi drops the employee/passenger to their residence VMSS transmits the rider I.D and therefore the vehicle I.D along side the position of the vehicle to the bottom station and makes positive that the work is 100 percent complete.

FEATURES

Some of the important features of the PSoC are follows:

1. Powerful Harvard architecture processor.
2. Advanced peripherals.
3. Flexible on-chip memory.
4. Precisionn, programmable clocking
5. Programmable pin configuration.
6. Additional system resources.
7. Complete development tool.

OPERATION

The typical parameters of a vehicle are temperature, speed, fuel, battery indication, agent level etc. These are measured by applicable sensors, followed by sign a process block and are given to ADC block that's an interior block of PSOC. The specified parameters are

sampled at regular interval; appropriate actions are take and a renovated in memory for later reference. Typically the system acts as a receiver. This consists of a RF preamp, rectifier. These blocks, except for RF preamp, are pronto provided by PSOC. The output of rectifier is fed to the UART, that is designed as a receiver. The system appearance for an approaching observance station. Once it detects the observance station, UART is designed as transmitter and is employed to convert knowledge into serial kind, then modulated victimisation digital

APPLICATIONS

A.)ENGINE SPEED MONITORING & CONTROL SYSTEM

The rotating shaft is applied with a reflective coating and at the center a strip of black interesting material is placed. Lightweight is projected on to the present shaft. the sunshine is mirrored by the reflective surface and is absorbed by the black-colored strip. The mirrored lightweight is perceived by image detector, followed by signal electronic equipment. The signal is then applied to schmith trigger and corresponding pulses area unit obtained. They're fed toa counter. These blocks area unit pronto accessible in PSOC. The Engine speed is monitored once in a very second and regenerate to rate, and showedin the display unit. once the Engine speed exceeds a predefined price, the monitorintervenes, and activates a motor to use the brakes. during this method the speed Is mechanically restricted to a predefined price.

b.)FUEL LEVEL MONITORING

The fuel level are often monitored by employing a non-conducting, non-contact mensuration system mistreatment radical sonic waves. The system consists of a radical sonic electrical device. The electrical device is mounted at the highest of the fuel tank. radical sonic signals area unit sent within the downward direction.

These waves area unit mirrored from the fuel surface and also the receiver receives the mirrored signals. The time march on, in receiving the mirrored ray since the transmission of signal, offers the whole distance traveled by the rays. By evaluating the easy mathematical expressions we will simply calculate the fuel level within the fuel tank This data is keep in Memory and wont to warn the motive force concerning fuel level.

C.)COLLISION DETECTION SYSTEM

One of the major problems in road transport is Head on Collisions, in which lives almost. To avoid or minimize collisions, the distance between this vehicle and neighboring vehicles is to be monitored. As the gap reduces once again the driver is to warned. For this an Ultra sonic proximity sensor can used. This consists of ultra sonic transmitter and receiver. The Ultra sonic signals are transmitted at regular intervals. These signals, upon falling on approaching vehicle, would be reflected. The reflected signal is received by Receiver circuitry, and the time for receiving the reflecting the signal is calculated. The time reduces for an approaching vehicle. This can be checked by a program, which alerts the driver. All the building blocks such as Signal amplifiers are readily provided by PSoC.

d.)TEMPERATURE MONITOR

One major space that troubles the individuals is that the engine. If the warmth generated isn't removed and also the engine isn't cooled, in no time the engine starts to err before it involves grinding halt. It's higher to use the thermal relays like thermistors. Here a resistance is employed to create a resistor divider network and also the junction voltage is fed to a voltage electronic equipment followed by ADC. Then the digitized price is employed by the program to see for the

bounds and appropriate warning is issued to driver. If from now on rise of temperature is detected, then the monitor will cutoff fuel to engine and apply brakes, forcing the vehicle to prevent. In this all the blocks, i.e. Voltage electronic equipment, ADC is out there in PSOC, simplifying the implementation.

e.) BATTERY MONITOR

Battery voltage is another major problem auto field. Especially when the battery is

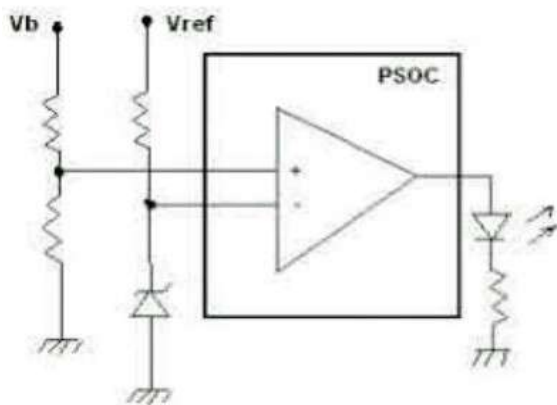


Fig2: Battery Monitor

Completely discharged, it causes problems. A comparator can monitor the battery status. To one input a ref voltage is applied and to the second input battery voltage is applied. If the battery voltage is greater than the reference voltage, the output of op-amp is positive. So the LED glows indicating battery is full. If the battery voltage is less than the reference voltage, output of the op-amp is negative and LED turns off indicating battery is to be charged. This can caution the driver.

CONCLUSION

In this fashionable, fast-paced and insecure world, it's become a basic necessity to remember of one's safety. Most risks occur in things whereby an worker travels for cash transactions. Conjointly the

corporate to that he belongs ought to remember if there's some drawback. What if the person traveling is tracked and conjointly secured within the case of an emergency?! Fantastic, isn't it? In fact it's and heres a system that functions as a pursuit and a security system. Its the VMSS. This technique will upset each pace and security. The on top of system is enforced exploitation ancient styles and approach. However the trend is to enter the systems into the gadgets, that they're dominant. This puts restrictions on designers for house, value and power consumption. In such cases one will intercommunicate small controller primarily based styles. The usage of PSOC simplifies style complexities, reduces the dimensions of system greatly and offers a bunch of peripheral devices which will be dynamically designed and used. It's expected that close to future PSOC over. takes different small controllers within the market and systems supported PSOC would be flooding the homes.

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