Driver Caution System For Safety Using Smart LED Display Boards

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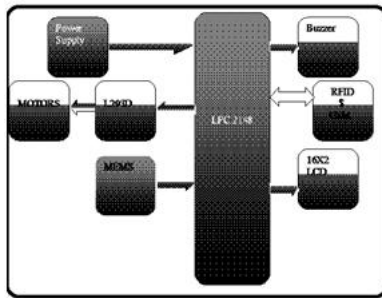Chalapathi Institute of Technology
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Abstract: **To prevent accidents and also to alert the motorists concerning the speed limits such type of places the highway department have placed the signboards. Nowadays individuals are driving extremely fast, accidents are occurring frequently, we lost our valuable existence by looking into making small mistake while driving (zone wise, hillsides area, highways). But, May too easy to view that sort of signboards and there's a way for accident. To intimate the motive force concerning the posted speed limit at zones and also to identify crashes instantly, is completed by way of using MEMS, RF, Gps navigation, GSM technology. The primary objective would be to design a good Display controller intended for vehicle's posted speed limit and crash alerts which could operate on an embedded system. Smart Display & Control (SDC) could be custom-designed to suit right into a vehicle's dashboard, and displays info on the automobile.**

Keywords: **Speed Limit Alert; Crash Detection; MEMS; GSM;**

I. INTRODUCTION

An embedded product is a method which will perform a predefined specified task may be the embedded system and it is even understood to be mixture of both hardware and software. An over-all-purpose meaning of embedded systems is they are devices accustomed to control, monitor or assist the whole process of equipment, machinery or plant. "Embedded" reflects the truth that they're a fundamental element of the machine. In the other extreme an over-all-purpose computer enables you to control the whole process of a sizable complex processing plant, and it is presence is going to be apparent. All embedded systems are including computers or microprocessors. A few of these computers are however quite simple systems compared to a pc. The simplest embedded systems can handle performing merely a single function or group of operates to meet just one predetermined purpose [1]. In additional complex systems a credit card application program that allows the embedded system for use for the purpose inside a specific application determines the functioning from the embedded system. The opportunity to have programs implies that exactly the same embedded system can be used as a number of different purposes. In some instances a micro-processor might be designed in a way that software for the purpose can be included to the fundamental software inside a second process, and isn't feasible to create further changes. The applications software on such processors may also be known as firmware. The easiest devices consist of merely one micro-processor (frequently known as a "chip"), which itself might be packaged along with other chips inside a hybrid system or Application Specific Integrated Circuit (ASIC). Its input develops from a detector or sensor and it is output would go to a switch or activator which (for instance) may begin or stop the whole process of a piece of equipment or, by operating a valve, may control the flow of fuel for an engine. Embedded systems perform a very specific task they can't be developed to do various things. . Embedded systems have limited sources, specially the memory. Generally, they don't have secondary storage devices like the C DROM or even the floppy disk. Embedded systems need to prevent some deadlines [2]. A particular job needs to be completed inside a specific time. In certain embedded systems, known as real-time systems, the deadlines are stringent. Missing a deadline could cause a catastrophe-lack of existence or property damage. Embedded systems are restricted for power. As numerous embedded systems operate via a battery, the ability consumption needs to be really low. In your own home we use numerous embedded systems including camera, digital diary, DVD player, electronic toys, micro wave, controllers for TV and air-conditioner, VCO player, gaming consoles, video recorders etc. Work automation products using embedded systems are copying machine, fax machine, key telephone, modem, printer, scanner etc. Industrial automation: Today lots of industries use embedded systems for process control.

Fig.1.Block diagram of proposed system

II. PROPOSED SYSTEM

The primary objective would be to design a good Display controller intended for vehicle's posted speed limit and crash alerts which could operate on an embedded system. Smart Display & Control (SDC) could be custom-designed to suit right into a vehicle's dashboard, and displays info on the automobile. Nowadays individuals are driving extremely fast; accidents are occurring frequently, we lost our valuable existence by looking into making small mistake while driving. So to prevent such type of accidents and also to alert the motorists concerning the speed limits such type of places the highway department have placed the signboards. But may it might to easy to view that sort of signboards and there's a way for accident. To intimate the driver concerning the posted speed limit at zones and also to identify crash instantly, is completed by way of using MEMS, RF, Gps navigation, GSM technology [3]. Once the details are caused by the zones (40kmph, 30kmph, 10kmph, the vehicle's embedded unit is instantly alerts the motive force by having an alarm, to lessen the rate based on the zone, if vehicles speed isn't reduced inside the posted speed limit zone, vehicle's SDC unit instantly transmits the facts of car and posted speed limit zone via a message towards the traffic police system. Whenever a vehicle met by having an accident, immediately with the aid of Gps navigation receiver, it identifies latitude and longitude and also the facts are sent through GSM modem towards the traffic police system. Thus accident location identified and necessary action is going to be taken by concern authority. Wait for a signal in the RFID TAG put into the Zone. RFID readers read the tag. If signal valid, the vehicle's embedded unit is instantly alerts the motive force by having an alarm, to lessen the rate based on the zone. Once the vehicle will get accident here I am showing by "shake the memes to understand the accident occurred". So, by trembling the button the MEMS SENSOR will begin in the process. Then your ARM controller will activate the GSM module. The GSM module will be sending the content "accident happened at following zone location as reported by the rid tag.

III. METHODOLOGY

A transformer is really a device that transfers electrical power in one circuit to a different through inductively coupled conductors-the transformer's coils. A different current within the first or primary winding results in a different magnetic flux within the transformer's core, and therefore a different magnetic field with the secondary winding. This different magnetic field induces a different electromotive pressure (EMF) or "current" within the secondary winding. This effect is known as mutual induction. A transformer utilizes Faraday's law and also the ferromagnetic qualities of the iron core to efficiently lower or raise AC voltages [4]. It obviously cannot increase power to ensure that when the current is elevated, the present is proportionally decreased and the other way around. GSM (Global System for Mobile communications) is definitely an open, digital cellular technology employed for transmitting mobile voice and knowledge services.GSM is really a digital mobile telephone system that's broadly utilized in Europe along with other parts around the globe. GSM utilizes a variation of your time Division Multiple Access (TDMA) and is easily the most broadly used from the three digital wireless telephone technologies (TDMA, GSM, and CDMA). GSM digitizes and compresses data, then transmits it lower a funnel with two other streams of user data, each in the own time slot. It operates at either the 900 MHz or 1,800 MHz frequency band. It supports voice calls and knowledge transfer speeds as high as 9.6 Kbit/s, along with the transmission of SMS (Short Message Service). For Identification (RFID) technologies have been attracting considerable attention with the aspiration of improved logistics visibility for suppliers and retailers. It will likewise enhance the consumer shopping experience by looking into making it much more likely the products they would like to purchase can be found. Current bulletins from some key retailers have introduced the eye in RFID towards the forefront. This informative guide is definitely a make an effort to familiarize the readers with RFID technology to enable them to be asking the best questions when thinking about we've got the technology. RFID (Fro Identification) is a technique of identifying unique products using radio waves. Typical RFID systems comprise 2 major components: readers and tags. The readers, sometimes known as the interrogator, transmit and receive RF data back and forth from the tag via antennas. Readers might have multiple antennas that handle delivering and finding the radio waves. The tag, or transponder, consists of the microchip that stores the information, an antenna, along with a carrier that the nick and antenna are mounted. RFID technologies are used today in lots of applications, including security and access control, transportation and offer chain tracking. It's a

technology that works well for collecting multiple bits of data on products for tracking and counting purposes inside a cooperative atmosphere. A micro electromechanical system (MEMS) may be the technology of the extremely small, and merges in the nano-scale into nano electromechanical systems. MEM is definitely an emerging technology which utilizes the techniques and tools which were produced for the Integrated Circuit industry to construct microscopic machines. This equipment is built on standard plastic wafers. The actual power farfel treatments is the fact that many machines could be built simultaneously across the top of wafer, without any set up needed. As it is a photo taking-like process, it is only as simple to construct millions of machines around the wafer as it might be to construct only one. An enormous amount of challenge and chance, where traditional engineering concepts are switched upside lower, and also the arena of the "possible" is completely redefined. MEMS are silently altering how you live, with techniques which you may never imagine. The unit that senses your vehicle has been around any sort of accident, and fires the airbag is really a MEMS device. Most new cars have on the dozen MEMS devices, making your vehicle safer, more energy-efficient, and much more eco-friendly. MEMS are showing up in a number of medical devices, and everyday consumer products [5]. MEMS are silently altering how you live, with techniques which you may never imagine. The unit that senses your vehicle has been around any sort of accident, and fires the airbag is really a MEMS device. Most new cars have on the dozen MEMS devices, making your vehicle safer, more energy-efficient, and much more eco-friendly. MEMS are showing up in a number of medical devices, and everyday consumer products. The ADXL103/ADXL203 is complete acceleration measurement systems on one, monolithic IC. The ADXL103 is really a single-axis accelerometer, and also the ADXL203 is really a dual-axis accelerometer. Both parts have a polysilicon surface-micro machined sensor and signal conditioning circuitry to apply wide open-loop acceleration measurement architecture. The output signals are analog voltages proportional to acceleration. The ADXL103/ADXL203 can handle calculating both good and bad accelerations to a minimum of ±1.7 g. The accelerometer can measure static acceleration forces for example gravity, making it utilized as a tilt sensor. The sensor is really a surface-micro machined polysilicon structure built on the top from the plastic wafer. Polysilicon springs suspend the dwelling over the top of wafer and supply a resistant against acceleration forces. Deflection from the structure is measured utilizing a differential capacitor that includes independent fixed plates and plates connected to the moving mass. The fixed plates are impelled by 180° out-of-phase square waves. Acceleration deflects the beam and unbalances the differential capacitor, leading to an output square wave whose amplitude is proportional to acceleration. Phase-sensitive demodulation techniques will be accustomed to rectify the signal and see the direction from the acceleration. The creation of the demodulator is amplified and introduced off-nick via a 32 kO resistor. At this time, the consumer can set the signal bandwidth from the device with the addition of a capacitor. This filtering improves measurement resolution helping prevent aliasing. The L293 and L293D are quadruple high-current half-H motorists. The L293 is made to provide bidirectional drive currents as high as 1 A at voltages from 4.5 V to 36 V. The L293D is made to provide bidirectional drive currents as high as 600-mA at voltages from 4.5 V to 36 V. Both devices are made to drive inductive loads for example relays, solenoids, electricity and bipolar walking motors, along with other high-current/high-current loads in positive-supply applications. All inputs are TTL compatible. Each output is really a complete totem-pole drive circuit, having a Darlington transistor sink along with a pseudo- Darlington source. Motorists are enabled in pairs, with motorists 1 and a pair of enabled by 1,2EN and motorists 3 and 4 enabled by 3,4EN. Motor is really a device that produces motion, no engine it always describes either an electric motor or perhaps a car engine. This may also make reference to: Motor unit, a piece of equipment that converts electricity right into a mechanical motion .AC motor, an motor unit that's driven by alternating electric current. A live view screen display (LCD) is really a thin, flat display device comprised of a variety of color or monochrome pixels arrayed before a source of light or reflector. Each pixel includes a column of live view screen molecules suspended between two transparent electrodes, and 2 polarizing filters, the axes of polarity which are vertical with respect to one another. With no liquid crystals together, light passing through you might be blocked through the other. The live view screen twists the polarization of sunshine entering one filter to let it go through another. Buzzers such as the TMB-series are magnetic audible signal devices with built-in oscillating circuits. The development combines an oscillation circuit unit having a recognition coil, a drive coil along with a magnetic transducer. Transistors, resistors, diodes along with other small devices behave as circuit devices for driving seem generators. With the use of current, current flows towards the drive coil on primary side and also to the recognition coil around the secondary side [6]. The amplification circuit, such as the transistor and also the feedback circuit, causes vibration. The oscillation current excites the

coil and also the unit generates an AC magnetic field akin to an oscillation frequency.

IV.   CONCLUSION

Rfid readers and full circuit is positioned within the vehicle and rfid cards are put at zone exit and entry points. Each card getting its very own id number. The primary theme of the project is overcome accidents at temple zones, school zones, and mix junctions by reduce speed of vehicles automatically by usher in wireless technologies. Once the vehicle enters to the zone rfid readers browse the card information that is placed at exit and entry points. According towards the card id number we insert the code inside arm processer. With this id number vehicle speed is controlled instantly but using provided energy or pulse width modulation. Each zone possess some predefined posted speed limit through govt. Applying this project vet avoid accidents in so meter way by utilizing gyroscope. Gyroscope dealing with gravitational pressure, once the vehicle naming large amount of improvement in 3dimentions processer send information towards the proprietors with assistance of gem technology.

V.   REFERENCE

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