ISSN No: 2348-4845
International Journal & Magazine of Engineering, Technology, Management and Research
A Peer Reviewed Open Access International Journal

The New Approach to RFID Assisted Navigation Systems for VANETS and Accident Identification Using ARM7

Amarthaluri Asha Ratnam
PG Student
St.Ann's College of Engineering And Technology
Chirala, Prakasam (Dist), A.P.

Devathoti Rajendra Prasad
Associate Professor
St.Ann's College of Engineering And Technology
Chirala, Prakasam (Dist), A.P.

ABSTRACT:

Day by day demand for the automation is increasing in square law manner to increase security, safety and life time of vehicles in different ways. This project is also comes under same category. Vehicular Ad Hoc Networks (VANETs) are created by applying the principles of mobile ad hoc networks (MANETs) - the spontaneous creation of a wireless network for data exchange - to the domain of vehicles. They are a key component of intelligent transportation systems (ITS). In this project, here propose a RFID Assisted Navigation System (RFID-ANS) for VANETs. RFID-ANS consists of RFID readers installed on vehicles and passive RFID tags deployed on roads. As the maintenance for a passive tag is easy and its cost is less than a dollar, it is feasible to deploy a large number of passive tags for a relatively low cost over a broad area that is full of roadways. Here as prototype to control the vehicle direction manually when ever user wants change the direction of vehicle he is provided by MEMS. It is interfaced with ARM7 microcontroller. Even though any uncomfortable road is there Vibration sensor will detect that road using ARM7 Microcontroller and vehicle automatically stops status updated in LCD wait for user navigation to move forward.

I.INTRODUCTION

RFID –ANS: In this paper, here propose a RFID Assisted Navigation System (RFID-ANS) for VANETs. RFID-ANS consists of RFID readers installed on vehicles and passive RFID tags deployed on roads. As the maintenance for a passive tag is easy and its cost is less than a dollar, it is feasible to deploy a large number of passive tags for a relatively low cost over a broad area that is full of roadways.

RFID-ANS complements to the current GPS navigation system when GPS signals are not available (such as in tunnels) or if the GPS position is ambiguous to a vehicle (such as at cloverleaf intersections). But in practice, GPS does not provide sufficient information for navigation due to its low positioning accuracy (5 to 7 meters). Moreover, even combined with map-matching technologies, GPS still cannot achieve lane level positioning and cannot provide information regarding the traffic direction in the current lane. Nevertheless, this information are necessary to prevent vehicles from entering a wrong way when roads are under construction or lanes are temporarily borrowed by the traffic along a different direction. Our RFID-ANS is designed to address such problems. Its convenience and benefits give incentives for users to install. Figure 1 shows the communication between tag and reader.

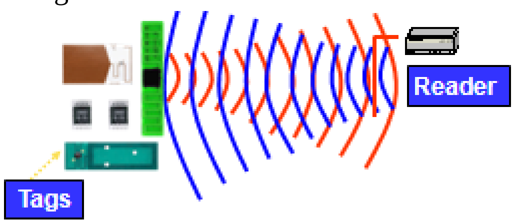


Fig 1

MEMS (Micro electro Mechanical systems):

Micro electro mechanical systems (MEMS) are the technology of the very small, and merge at the nano-scale into nano electromechanical systems. MEMS are also referred to as micromachines (in Japan), or Micro Systems Technology - MST (in Europe).MEMS is an emerging technology which uses the tools and

ISSN No: 2348-4845
International Journal & Magazine of Engineering, Technology, Management and Research
A Peer Reviewed Open Access International Journal

techniques that were developed for the Integrated Circuit industry to build microscopic machines. These machines are built on standard silicon wafers. The real power of this technology is that many machines can be built at the same time across the surface of the wafer, with no assembly required. Since it is a photographic-like process, it is just as easy to build a million machines on the wafer as it would be to build just one.

MEMS is the integration of mechanical elements, sensors, actuators, and electronics on a common silicon substrate through microfabrication technology. While the electronics are fabricated using integrated circuit (IC) process sequences (e.g., CMOS, Bipolar, or BICMOS processes), the micromechanical components are fabricated using compatible "micromachining" processes that selectively etch away parts of the silicon wafer or add new structural layers to form the mechanical and electromechanical devices.

VIBRATION SENSORS:

Critical to vibration monitoring and analysis is the machine mounted sensor. Three parameters representing motion detected by vibration monitors are displacement, velocity, and acceleration. These parameters are mathematically related and can be derived from a variety of motion sensors. Selection of a sensor proportional to displacement, velocity or acceleration depends on the frequencies of interest and the signal levels involved.

Global competition and pressure on corporate performance makes productivity a primary concern for any business in the 90's. Machinery vibration monitoring programs are effective in reducing overall operating costs of industrial plants. Vibrations produced by industrial machinery are vital indicators of machinery health. Machinery monitoring programs record a machine's vibration history. Monitoring vibration levels over time allows the plant engineer to predict problems before serious damage occurs. Machinery damage and costly production delays caused by unforeseen machinery failure can be prevented. When pending problems are discovered early, the plant engineer has the opportunity to schedule maintenance and reduce downtime in a cost effective manner. Vibration analysis is used as a tool to determine machine condition and the specific cause and location of machinery problems. This expedites repairs and minimizes costs.

II.RELATED WORK

RFID: RFID (Radio Frequency Identification) is a method of identifying unique items using radio waves. Typical RFID systems are made up of 2 major components: readers and tags. The reader, sometimes called the interrogator, sends and receives RF data to and from the tag via antennas. A reader may have multiple antennas that are responsible for sending and receiving the radio waves. The tag, or transponder, is made up of the microchip that stores the data, an antenna, and a carrier to which the chip and antenna are mounted

There are many different versions of RFID that operate at different radio frequencies. The choice of frequency is dependent on the requirements of the application.

Three primary frequency bands have been allocated for RFID use.
Low Frequency (125/134 KHz):
Most commonly used for access control and asset tracking.
Mid-Frequency (13.56 MHz):
Used where medium data rate and read ranges are required.
Ultra High-Frequency (850 MHz to 950 MHz and 2.4 GHz to 2.5 GHz):
offer the longest read ranges and high reading speeds.
RFID tags are further broken down into two categories:

Active RFID

Tags are battery powered .They broadcast a signal to the reader and can transmit over the greatest Distances (100+ feet).Typically they can cost $4.00 - $20.00 or

ISSN No: 2348-4845
International Journal & Magazine of Engineering, Technology, Management and Research
A Peer Reviewed Open Access International Journal

more and are used to track high value goods like vehicles and large containers of goods. Shipboard containers are a good example of an active RFID tag application

Passive RFID

Tags do not contain a battery. Instead, they draw their power from the reader. The reader transmits a low power radio signal through its antenna to the tag, which in turn receives it through its own antenna to power the integrated circuit (chip). The tag will briefly converse with the reader for verification and the exchange of data. As a result, passive tags can transmit information over shorter distances (typically 10 feet or less) than active tags. They have a smaller memory capacity and are considerably lower in cost ($1.00 or less) making them ideal for tracking lower cost items.

This is a desirable format since companies will be able to write an EPC (electronic product code) to the tag when the product is produced and packaged.

The Electronic Product Code (EPC):

The EPC is a number made up of a header and 3 sets of data as shown in the figure below. The header identifies the EPC version number – which will allow for different lengths or types of EPC later on. The second part of the number identifies the EPC manager – typically this would be the manufacturer of the item the EPC is attached to. The third part is called object class and refers to the exact type of product– most often the stock-keeping unit (SKU). The fourth series of numbers is the serial number that is unique to the item. (The second and third sets of data are similar in function to the numbers in UPC barcodes.)

ELECTRONIC PRODUCT CODE TYPE 1			
1	0000A89	00016F	000169DCO
Header	EPC Manage r	Object Class	Serial Number
8-bits	28-bits	24-bits	36-bits

Above is an example of a 96-bit EPC. It will allow sufficient capacity for 268 million companies.

MEMS:

ADXL103/203 General Description:

The ADXL103/ADXL203 are high precision, low power, complete single- and dual-axis accelerometers with signal conditioned voltage outputs, all on a single, monolithic IC. The ADXL103/ADXL203 measure acceleration with a full-scale range of ±1.7 g. The ADXL103/ADXL203 can measure both dynamic acceleration (for example, vibration) and static acceleration (for example, gravity).

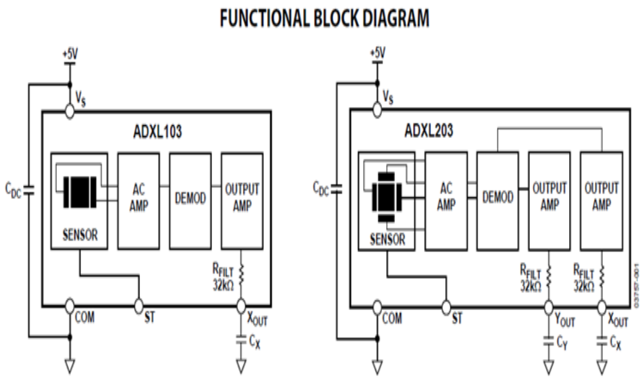


Fig 2 and 3

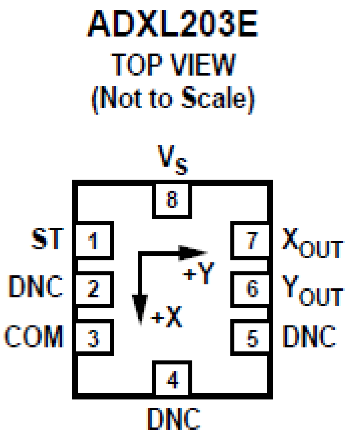
Theory of Operation:

The ADXL103/ADXL203 are complete acceleration measure-ment systems on a single, monolithic IC. The ADXL103 is a single-axis accelerometer, and the ADXL203 is a dual-axis accelerometer. Both parts contain a polysilicon surface-micromachined sensor and signal conditioning circuitry to implement open-loop acceleration measurement architecture. The output signals are analog voltages proportional to acceleration. The ADXL103/ADXL203 are capable of measuring both positive and negative accelerations to at least ±1.7 g. The accelerometer can measure static acceleration forces such as gravity, allowing it to be used as a tilt sensor.

The sensor is a surface-micromachined polysilicon structure built on top of the silicon wafer. Polysilicon springs suspend the structure over the surface of the wafer and provide a resistance against acceleration

ISSN No: 2348-4845
International Journal & Magazine of Engineering, Technology, Management and Research
A Peer Reviewed Open Access International Journal

forces. Deflection of the structure is measured using a differential capacitor that consists of independent fixed plates and plates attached to the moving mass. The fixed plates are driven by 180° out-of-phase square waves. Acceleration deflects the beam and unbalances the differential capacitor, resulting in an output square wave whose amplitude is proportional to acceleration. Phase-sensitive demodulation techniques are then used to rectify the signal and determine the direction of the acceleration. The output of the demodulator is amplified and brought off-chip through a 32 kΩ resistor. At this point, the user can set the signal bandwidth of the device by adding a capacitor. This filtering improves measurement resolution and helps prevent aliasing.



ADXL203 Pin Function Description

Pin no	Mnemonic	Description
1	AT	Self Test
2	DNC	Do Not Connect
3	COM	Common
4	DNC	Do Not Connect
5	DNC	Do Not Connect
6	Y OUT	Y Channel Output
7	XOUT	X Channel Output
8	Vs	3v To 6v

III.WORKING:

In this project, here propose a RFID Assisted Navigation System (RFID-ANS) for VANETs. RFID-ANS consists of RFID readers installed on vehicles and passive RFID tags deployed on roads. As the maintenance for a passive tag is easy and its cost is less than a dollar, it is feasible to deploy a large number of passive tags for a relatively low cost over a broad area that is full of roadways.

RFID-ANS complements to the current GPS navigation system when GPS signals are not available (such as in tunnels) or if the GPS position is ambiguous to a vehicle (such as at cloverleaf intersections). But in practice, GPS does not provide sufficient information for navigation due to its low positioning accuracy (5 to 7 meters). Moreover, even combined with map-matching technologies, GPS still cannot achieve lane level positioning and cannot provide information regarding the traffic direction in the current lane. Nevertheless, these information are necessary to prevent vehicles from entering a wrong way when roads are under construction or lanes are temporarily borrowed by the traffic along a different direction. Our RFID-ANS is designed to address such problems. Its convenience and benefits give incentives for users to install.

Here as prototype to control the vehicle direction manually when ever user wants change the direction of vehicle he is provided by MEMS. A MEMS-based magnetic field sensor is a small-scale micro electro mechanical (MEMS) device for detecting and measuring magnetic fields. It is interfaced with microcontroller. To change the direction of vehicle we have to tilt the MEMS sensor.

This system is also interfaced with RFID Reader. Whenever roads are under construction or lanes are temporarily borrowed by the traffic along a different direction in those directions we are placing RFID tags. RFID reader located in vehicle will read the unique id

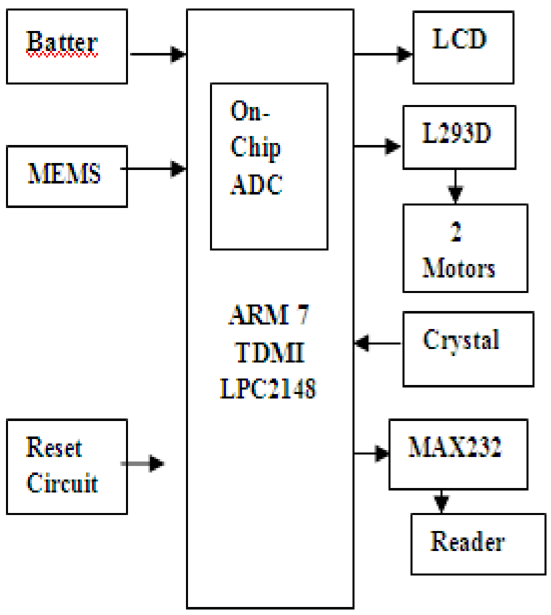
ISSN No: 2348-4845
International Journal & Magazine of Engineering, Technology, Management and Research
A Peer Reviewed Open Access International Journal

present in each RFID tag depending upon value automatically.

Changed direction is indicated in LCD with reason. Vehicle changes its direction visa versa. Even though any uncomfortable road is there vibration sensor will detect that road and vehicle automatically stops status updated in LCD wait for user navigation to move forward.

This project uses regulated 5V, 1A power supply. 7805 three terminal voltage regulator is used for voltage regulation. Bridge type full wave rectifier is used to rectify the ac output of secondary of 230/12V step down transformer.

BLOCK DIAGRAM:



Hardware Implementation:
Hardware Components:
1. ARM7 LPC2148 Theory:

The LPC2148 microcontrollers are based on a 16-bit/32-bit ARM7TDMI-S CPU with real time emulation and embedded trace support, that combine microcontroller with embedded high speed flash memory ranging from 32 kB to 512 kB. A 128-bit wide memory interface and a unique accelerator architecture enable 32-bit code execution at the maximum clock rate. For critical code size applications, the alternative 16-bit Thumb mode reduces code by more than 30 % with minimal performance penalty.

Features:

• 16/32-bit ARM7TDMI-S microcontroller in a tiny LQFP64 package.

• 8 to 40 kB of on-chip static RAM and 32 to 512 kB of on-chip flash program memory.128 bit wide interface/accelerator enables high speed 60 MHz operation.

• In-System/In-Application Programming (ISP/IAP) via on-chip boot-loader software. Single flash sector or full chip erase in 400 ms and programming of 256 bytes in 1 ms.

• EmbeddedICE RT and Embedded Trace interfaces offer real-time debugging with the on-chip RealMonitor software and high speed tracing of instruction execution.

• USB 2.0 Full Speed compliant Device Controller with 2 kB of endpoint RAM. In addition, the LPC2146/8 provides 8 kB of on-chip RAM accessible to USB by DMA.

• One or two (LPC2141/2 vs. LPC2144/6/8) 10-bit A/D converters provide a total of 6/14 analog inputs, with conversion times as low as 2.44s per channel.

• Single 10-bit D/A converter provide variable analog output.

• Two 32-bit timers/external event counters (with four capture and four compare channels each), PWM unit (six outputs) and watchdog.

• Low power real-time clock with independent power and dedicated 32 kHz clock input.

• Multiple serial interfaces including two UARTs (16C550), two Fast I2C-bus (400 kbit/s), SPI and SSP with buffering and variable data length capabilities.

• Vectored interrupt controller with configurable priorities and vector addresses.

• Up to 45 of 5 V tolerant fast general purpose I/O pins in a tiny LQFP64 package.

ISSN No: 2348-4845
International Journal & Magazine of Engineering, Technology, Management and Research
A Peer Reviewed Open Access International Journal

• Up to nine edge or level sensitive external interrupt pins available.

Control Functions:

The System Control Block includes several system features and control registers for a number of functions that are not related to specific peripheral devices. These include:

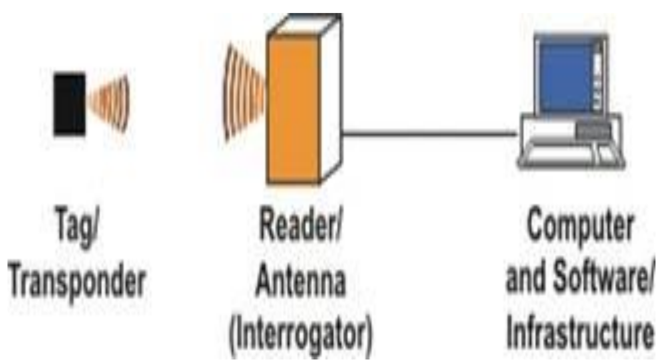
• Crystal Oscillator
• External Interrupt Inputs
• Miscellaneous System Controls and Status
• Memory Mapping Control
• PLL
• Power Control
• Reset
• APB Divider
• Wakeup Timer

Each type of function has its own register(s) if any are required and unneeded bits are defined as reserved in order to allow future expansion. Unrelated functions never share the same register addresses.

10-Bit ADC:

The LPC2141/42 contains one and the LPC2144/46/48 contains two analog to digital converters. These converters are single 10-bit successive approximation analog to digital converters. While ADC0 has six channels, ADC1 has eight channels. Therefore, total number of available ADC inputs for LPC2141/42 is 6 and for LPC2144/46/48 are 14.

2 .Rfid Reader and Tag:

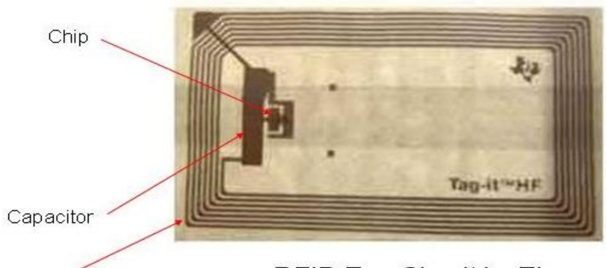


• The antenna emits radio signals to activate the tag and to read and write data to it.

• The reader emits radio waves in ranges of anywhere from one inch to 100 feet or more, depending upon its power output and the radio frequency used. When an RFID tag passes through the electromagnetic zone, it detects the reader's activation signal.

• The reader decodes the data encoded in the tag's integrated circuit (silicon chip) and the data is passed to the host computer for processing

Passive Tag:

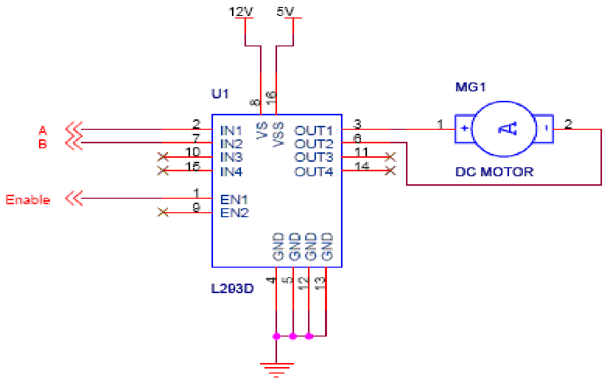


RFID Tag Circuit by TI

Passive RFID Tags do not contain a battery. Instead, they draw their power from the reader. The reader transmits a low power radio signal through its antenna to the tag, which in turn receives it through its own antenna to power the integrated circuit (chip). The tag will briefly converse with the reader for verification and the exchange of data. As a result, passive tags can transmit information over shorter distances (typically 10 feet or less) than active tags. They have a smaller memory capacity and are considerably lower in cost ($1.00 or less) making them ideal for tracking lower cost items.

3. L293D Dual H-Bridge Motor Driver:

L293D is a dual H-Bridge motor driver, so with one IC we can interface two DC motors which can be controlled in both clockwise and counter clockwise direction and if you have motor with fix direction of motion the you can make use of all the four I/Os to connect up to four DC motors. L293D has output current of 600mA and peak output current of 1.2A per channel. Moreover for protection of circuit from back EMF ouput diodes are included within the IC. The output supply (VCC2) has a wide range from 4.5V to 36.



Truth Table

A	B	Description
0	0	Motor stops or Breaks
0	1	Motor Runs Anti-Cloclwise
1	0	Motor Runs Clockwise
1	1	Motor Stops or Breaks

For above truth table, the Enable has to be Set (1). Motor Power is mentioned 12V, but you can connect power according to your motors.

Similarly, when you switch on low side left and high side right, the current flows in opposite direction and motor rotates in backward direction. This is the basic working of H-Bridge. We can also make a small truth table according to the switching of H-Bridge explained above.

Truth Table:

High Left	High Right	Low Left	Low Right	Description
On	Off	Off	On	Motor Runs Clockwise
Off	On	On	Off	Motor Runs Anti-Clockwise
On	On	Off	Off	Motor Stops Or Decelerates
Off	Off	On	On	Motor Stops Or Decelerates

4. Vibration Sensor:

A Single-Pole, Single-Throw (SPST) mercury switch on millimetre graph paper Another mercury switch design.A mercury switch (also known as a mercury tilt switch) is a switch which opens and closes an electrical circuit through a small amount of liquid mercury.

Description:

Mercury switches have one or more sets of electrical contacts in a sealed glass envelope which contains a bead of mercury. The envelope may also contain air, an inert gas, or a vacuum. Gravity is constantly pulling the drop of mercury to the lowest point in the envelope. When the switch is tilted in the appropriate direction, the mercury touches a set of contacts, thus completing the electrical circuit through those contacts. Tilting the switch the opposite direction causes the mercury to move away from that set of contacts, thus breaking that circuit.[1] The switch may contain multiple sets of contacts, closing different sets at different angles, allowing, for example,single-pole,double-throw(SPDT)operation.

5. MAX 232 ---- Dual Driver/Receiver

Features:

- Operates from a single 5V Power Supply with 1.0uF Charge-Pump Capacitors
- Operates up to 120 k bit/s
- Two Drivers and Two Receivers
- ±30 V Input Levels
- Low Supply Current . . . 8 mA Typical

Upgrade with Improved ESD (15kV HBM) and 0.1uF Charge-Pump Capacitors is available With the MAX202.

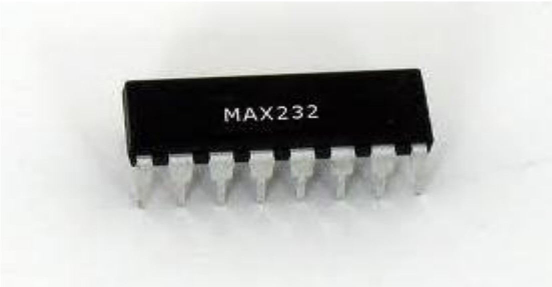
Applications-- TIA/EIA-232-F, Battery-Powered Systems, Terminals, Modems, and Computers

Description:

The MAX232 is a dual driver/receiver that includes a capacitive voltage generator to supply TIA/EIA-232-F

ISSN No: 2348-4845
International Journal & Magazine of Engineering, Technology, Management and Research
A Peer Reviewed Open Access International Journal

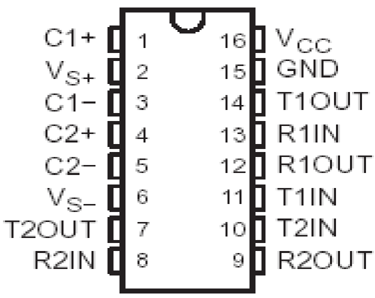
voltage levels from a single 5V supply. Each receiver converts TIA/EIA-232-F inputs to 5V TTL/CMOS levels. These receivers have a typical threshold of 1.3V, a typical hysteresis of 0.5 V, and can accept up to 30V inputs. Each driver converts TTL/CMOS input levels into TIA/EIA-232-F levels.



MAX232 is primary used for people building electronics with an RS232 interface. Serial RS232 communication works with voltages (-15V ... -3V for high) and +3V ... +15V for low) which are not compatible with normal computer logic voltages. To receive serial data from an RS232 interface the voltage has to be reduced, and the low and high voltage level inverted. In the other direction (sending data from some logic over RS232) the low logic voltage has to be "bumped up", and a negative voltage has to be generated, too.

	RS232	TTL	Logic
	-15 … -3V	<-> +2V … +5V	<-> High
	+3V … +15V	<-> 0V …+0.8V	<-> Low

Pin Diagram of MAX232



Function Table

EACH DRIVER

INPUT TIN	OUTPUT TOUT
L	H
H	L

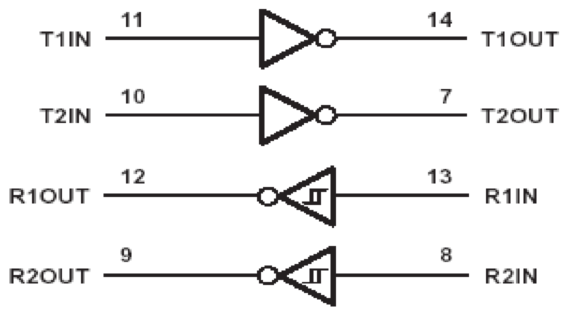
H = high level, L = low level

EACH RECEIVER

INPUT RIN	OUTPUT ROUT
L	H
H	L

H = high level, L = low level

Logic Diagram: (Positive Logic)



In this circuit the microcontroller transmitter pin is connected in the MAX232 T2IN pin which converts input 5v TTL/CMOS level to RS232 level. Then T2OUT pin is connected to reviver pin of 9 pin D type serial connector which is directly connected to PC.

In PC the transmitting data is given to R2IN of MAX232 through transmitting pin of 9 pin D type connector which converts the RS232 level to 5v TTL/CMOS level. The R2OUT pin is connected to receiver pin of the microcontroller. Likewise the data is transmitted and received between the microcontroller and PC or other device vice versa.

ISSN No: 2348-4845
International Journal & Magazine of Engineering, Technology, Management and Research
A Peer Reviewed Open Access International Journal

6. Crystal Oscillator:

On chip integrated oscillator operates with external crystal in range of 1 MHz to 25 MHz. The oscillator output frequency is called fosc and the ARM processor clock frequency is referred to as CCLK for purposes of rate equations, etc. fosc and CCLK are the same value unless the PLL is running and connected.

7. Reset Circuit:

Reset has two sources on the LPC2148: the RESET pin and watchdog reset. The RESET pin is a Schmitt trigger input pin with an additional glitch filter. Assertion of chip reset by any source starts the Wake up Timer (see Wake up Timer description below), causing the internal chip reset to remain asserted until the external reset is de asserted, the oscillator is running, a fixed number of clocks have passed, and the on chip flash controller has completed its initialization.

When the internal reset is removed, the processor begins executing at address 0, which is the reset vector. At that point, all of the processor and peripheral registers have been initialized to predetermined values.

8. Power Supply:

The ac voltage, typically 220Vrms, is connected to a transformer, which steps that ac voltage down to the level of the desired dc output. A diode rectifier then provides a full wave rectified voltage that is initially filtered by a simple capacitor filter to a dc voltage. This resulting dc voltage usually has some ripple or ac voltage variation.

A regulator circuit removes the ripples and also remains the same dc value even if the input dc voltage varies, or the load connected to the output dc voltage changes. This voltage regulation is usually obtained using one of the popular voltages regulator IC units.

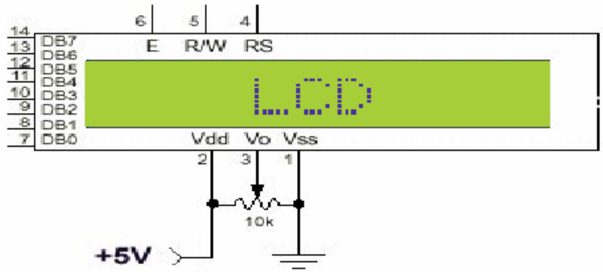
9. Liquid Cristal Display:

A liquid crystal display (LCD) is a thin, flat display device made up of any number of color or monochrome pixels arrayed in front of a light source or reflector. Each pixel consists of a column of liquid crystal molecules suspended between two transparent electrodes, and two polarizing filters, the axes of polarity of which are perpendicular to each other. Without the liquid crystals between them, light passing through one would be blocked by the other. The liquid crystal twists the polarization of light entering one filter to allow it to pass through the other.

A program must interact with the outside world using input and output devices that communicate directly with a human being. One of the most common devices attached to an controller is an LCD display. Some of the most common LCDs connected to the contollers are 16X1, 16x2 and 20x2 displays. This means 16 characters per line by 1 line 16 characters per line by 2 lines and 20 characters per line by 2 lines, respectively.

Pin Description:

Most LCDs with 1 controller has 14 Pins and LCDs with 2 controller has 16 Pins (two pins are extra in both for back-light LED connections).



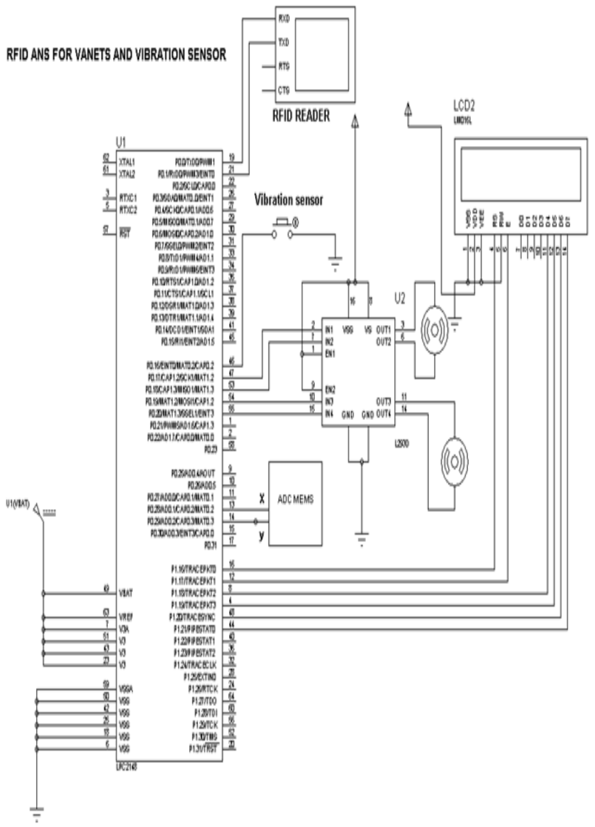
PIN DIAGRAM OF 1X16 LINES LCD

Pin Description:

PIN	SYMBOL	FUNCTION
1	Vss	Power Supply(GND)
2	Vdd	Power Supply(+5V)
3	Vo	Contrast Adjust
4	RS	Instruction/Data Register Select
5	R/W	Data Bus Line
6	E	Enable Signal
7-14	DB0-DB7	Data Bus Line
15	A	Power Supply for LED B/L(+)
16	K	Power Supply for LED B/L(-)

ISSN No: 2348-4845
International Journal & Magazine of Engineering, Technology, Management and Research
A Peer Reviewed Open Access International Journal

Schematic Diagram of RFID-ANS for VANETS and Vibration Sensor with ARM7:



ADVANTAGES:

- Easy to operate
- Sophisticated security
- Simple and Reliable Design
- Isolates both GSM and CDMA mobile signal
- Scheduled time of operation can be programmed
- Works with reference to Real Time Clock

APPLICATIONS:

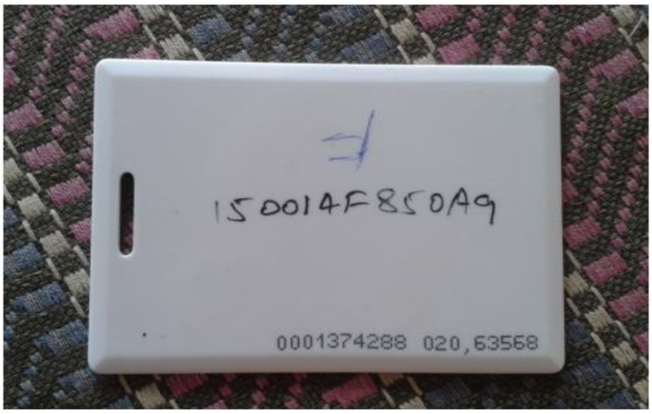
- Defense Applications
- Libraries
- Temples
- Colleges
- Seminar halls and conference rooms
- Security for VIPs during their visit to public places

IV.TEST AND RESULT

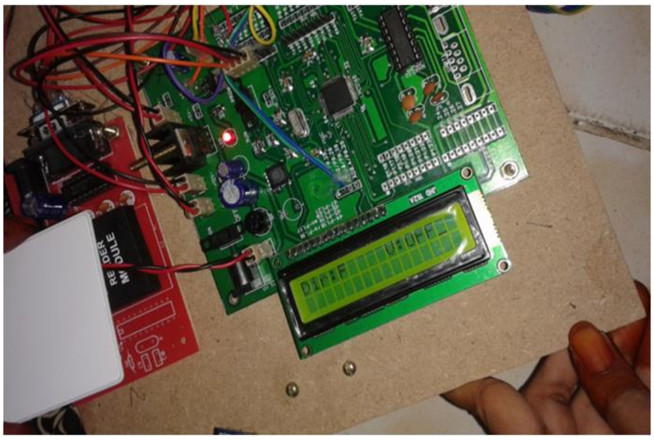
A. Experimental Result RFID Assisted Navigation Result for VANETS:

RFID Card No	Unique No	Direction
RFID-0	150014F850A9	F (FORWARD)
RFID-1	150014FE649B	L(LEFT)
RFID-2	150014F411E4	R(RIGHT)
RFID-3	150014ED1FF3	R(RIGHT)

RFID Tag:



Result displayed on LCD:



RFID reader located in vehicle will read the unique id present in each RFID tag depending upon value automatically Changed direction is indicated in LCD with reason.

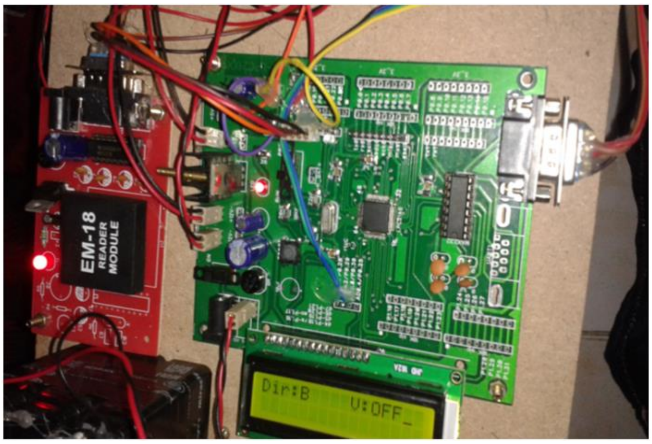
ISSN No: 2348-4845
International Journal & Magazine of Engineering, Technology, Management and Research
A Peer Reviewed Open Access International Journal

B. Result When Tilting the MEMS:

X	Y	DIRECTION
450-550	450-550	S(STOP)
450-550	350-450	F(FORWARD)
450-550	550-650	B(BACKWARD)
550-650	450-550	L(LEFT)
350-450	450-550	R(RIGHT)

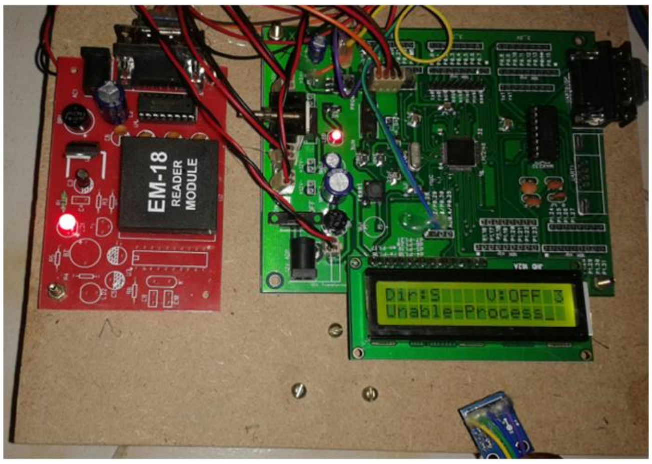
Result displayed on LCD:

If we want to change the direction of the vehicle then we can tilt the MEMS sensor. Here when tilting the MEMS in some direction the co-ordinates x,y are 450-550,550-660 respectively then the output is shown as B(BACKWARD) direction on LCD.



C .Vibration Sensor Result:

After having three jerks in vibration sensor the system stops.



V.CONCLUSION:

RFID reader located in vehicle will read the unique id present in each RFID tag depending upon value automatically Changed direction is indicated in LCD with reason. When there is no RFID tag if user wants to change the direction then by tilting the MEMS sensor vehicle changed the direction. Because of Vibration sensor If three jerks will happened in vehicle then vehicle stops automatically status updated in LCD wait for user navigation to move forward. By adding GPRS system to this project we can produce wider applications and by changing the vibration sensor features we can identify different results.

REFERENCES:

[1] H. Han, B. Sheng, C.C. Tan, Q. Li, W. Mao, and S. Lu, "Counting Rfid Tags Efficiently and Anonymously," Proc. IEEE INFOCOM '10, Mar. 2010.

[2] M. Kodialam and T. Nandagopal, "Fast and Reliable Estimation Schemes in Rfid Systems," Proc. MobiCom '06, pp. 322-333, 2006.

[3] L. Xie, B. Sheng, C.C. Tan, Q. Li, and D. Chen, "Efficient Tag Identification in Mobile Rfid Systems," Proc. IEEE INFOCOM '10, Mar. 2010.

[4] B. Metcalfe, "Steady-State Analysis of a Slotted and Controlled Aloha System with Blocking," SIGCOMM Computer Comm. Rev., vol. 5, no. 1, pp. 24-31, 1975.

[5] S.-R. Lee, S.-D. Joo, and C.-W. Lee, "An Enhanced Dynamic Framed Slotted Aloha Algorithm for Rfid Tag Identification," Proc. the Second Ann. Int'l Conf. Mobile and Ubiquitous Systems: Networking.