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The Managing of Interior and Ventilation of the Vehicle

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Abstract:

The overview of this project is to implement a driverless car is an autonomous vehicle that can drive itself from one point to another without assistance from a driver. One of the main impetuses behind the call for driverless cars is safety. An autonomous vehicle is fundamentally defined as a passenger vehicle. An autonomous vehicle is also referred to as an auto pilot car, auto-drive car, or automated guided vehicle (AGV). Most prototypes that have been built so far performed automatic steering that were based on sensing the painted lines in the road or magnetic monorails embedded in the road.

Introduction:

The aim of the project is capable of sensing its environment and navigating without human input. The system having the sensors to identify the environment and GPS receiver to check the position. Autonomous vehicles sense the environment and follow its path. So the vehicle will move on the proper lane. An obstacle identifier system is attached in the system to find the object approaching towards the car. If any object approaches within range then the speed of the car will be controlled by using pulse width modulating technique It can able to update the moving location to the controller section.

LITERATURE SURVEY:

A driverless car is an autonomous vehicle that can drive itself from one point to another without assistance from a driver. Some believe that autonomous vehicles have the potential to transform the transportation industry while virtually eliminating accidents, and cleaning up the environment.

According to urban designer and futurist Michael E.Arth, driverless electric vehicles in conjunction with the increased use of virtual reality for work, travel, and pleasure could reduce the world's 800,000,000 vehicles to a fraction of that number within a few decades .Claims that this would be possible if almost all private cars requiring drivers. Which are not in use and parked 90% of the time, would be traded for public self-driving taxis that would be in near constant use. This would also allow for getting the appropriate vehicle for the particular need a bus could come for a group of people, a limousine could come for a special night out, and a Segway could come for a short trip down the street for one person. Children could be chauffeured in supervised safe Safety, DUIs would no longer exist, and 41,000 lives could be saved each year in the U.S. alone.

Driverless passenger car programs include the 800 million EC EUREKA Prometheus Project on autonomous vehicles (1987-1995), together passenger vehicles (using the FROG-navigation technology) from the Netherlands, the ARGO research project from Italy, and the DARPA Grand Challenge from the USA. For the wider application of artificial intelligence to automobiles see smart car .Most autonomous vehicle projects made use of stock cars and modified them, adding “smart “hardware to create automated cars. The advantage of using stock cars is the ease of obtaining the car through sponsors. The stocks cars help convey the message autonomous vehicles are not science fiction anymore and these systems can be implemented on normal cars history.

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ORGANIZATION OF THESIS:

Thesis consists seven chapters and each chapter has its own speciality. The following are the points which show how the thesis has been organized.

Chapter 1 consists of the introduction to the project and it consists of subtitles like Overview, aim of the project, literature survey, components and tools used and organization of these.

Chapter 2 gives the details of GPS, this Chapter describes about the working the GPS and GSM

Chapter 3 describes about the different hardware modules like ARM controller Ultrasonic Sensors, LCD display, GPS, GSM and Motor

Chapter 4 describes about the different Software modules, Explanation of the Project.

Chapter 5 presents the project implementation .

Chapter 6 presents the Result and analysis of the Project.

Chapter 7 includes the Advantages, disadvantages And Applications. Finally the thesis is concludes by the Overall Work Done in the Project and Future research directions.

GPS TECHNOLOGY:

This project involves a vehicle that will be able to navigate its way around obstacles using sensors placed on each of its four sides. The automobile will be able to find its way to a specified destination using the Garmin GPS unit. We chose this project because we thought the idea of building a car with obstacle avoidance would be a challenging problem, and after viewing a few projects using GPS, we were interested in how it worked.

The Global Positioning System (GPS) is a space-based global navigation satellite system (GNSS) that provides reliable location and time information in all weather and at all times and anywhere on or near the Earth when and where there is an unobstructed line of sight to four or more GPS satellites. It is maintained by the United States government and is freely accessible by anyone with a GPS receiver.

OBJECTIVES:

We intend to build a car that will be able to guide itself to a desired end point and will need minimal human effort to complete the journey. The only task that is required of an individual is to let the system know what the destination points will be and when to start moving. In addition to following the route given by the GPS receiver, the vehicle will have the capability to dodge items that hinder its progress.

GPS FEATURES:

- Obstacle avoidance
- Ability to choose path based on which has the furthest obstructions
- Ability to get to a specified point through interaction with GPS

WORKING OF GPS:

GPS satellites circle the earth twice a day in a very precise orbit and transmit signal information to earth. GPS receivers take this information and use triangulation to calculate the user's exact location. Essentially, the GPS receiver compares the time a signal was transmitted by a satellite with the time it was received. The time difference tells the GPS receiver how far away the satellite The Global Positioning System (GPS) is a space-based global navigation satellite system (GNSS) that provides reliable location and time information in all weather and at all times and anywhere on or near the Earth when and where there is an unobstructed line of sight to four or more GPS satellites.

It is maintained by the United States government and is freely accessible by anyone with a GPS receiver. Now, with distance measurements from a few more satellites, the receiver can determine the user's position and display it on the unit's electronic map. The ability to plot a route from where the vehicle is to where the user wants to be has been available for several years.

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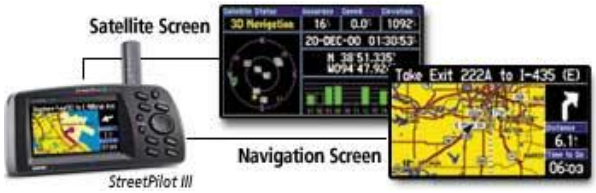
These systems, based on the US military's Global Positioning System are now available as standard car fittings, and use satellite transmissions to ascertain the current location, and an on-board street database to derive a route to the target. The more sophisticated systems also receive radio updates on road blockages, and adapt accordingly. There are also sensors that greatly affect the whole nature of it.



GPS Navigation screen:

A GPS receiver must be locked on to the signal of at least three satellites to calculate a 2D position (latitude and longitude) and track movement. With four or more satellites in view, the receiver can determine the user's 3D position (latitude, longitude and altitude). Once the user's position has been determined, the GPS unit can calculate other information, such as speed, bearing, track, trip distance, distance to destination, sunrise and sunset time and more.

GPS RECEIVER:

GPS receivers are extremely accurate, thanks to their parallel multi-channel design. Garmin's 12 parallel channel receivers are quick to lock onto satellites when first turned on and they maintain strong locks, even in dense foliage or urban settings with tall buildings. Certain atmospheric factors and other sources of error can affect the accuracy of GPS receivers. Garmin® GPS receivers are accurate to within 15 meters on average.

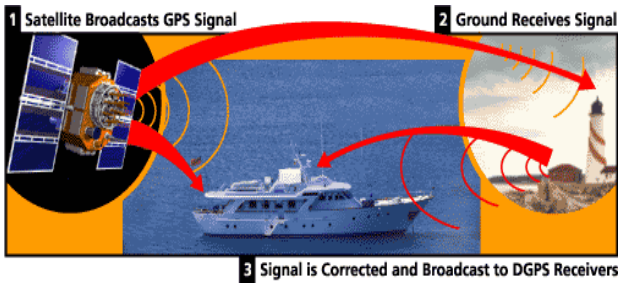


Fig 2.2 Signal corrected receiver

2.2.1 Time-Division Multiple Access (TDMA):

TDMA (time division multiple access) is a technology used in digital cellular telephone communication to divide each cellular channel into three time slots in order to increase the amount of data that can be carried.

Working:

TDMA works by time-division multiplexing: sending multiple signals (each of which has its own time slot) simultaneously on a single carrier in the form of a complex signal, and then recovering the separate signals at the receiving end. For TDMA, the carrier is divided into three time slots, each of which serves one subscriber. The information is broken into tiny data packets, which are transmitted in timed bursts in the 30-megahertz range. At the receiving end, the separate information streams are recovered. See also FDMA (frequency division multiple access) and CDMA (code-division multiple access).

TDMA was developed in response to the basic wireless network problem: large numbers of users and limited frequency allotments. TDMA increases network efficiency by enabling single connections to carry multiple data channels, offering a three-fold increase in capacity over Advanced Mobile Phone Service (AMPS) networks. Flexible and scalable, TDMA facilitates step-by-step migration to digital operation. TDMA can be implemented seamlessly across both 800- and 1900-MHz networks. Its hierarchical cell structure allows service providers to increase capacity where demand is greatest, in high-use areas.

4 History of GSM:

Early European analog cellular networks consisted of a mix of technologies and protocols that varied from country to country, meaning that phones did not necessarily work on different networks. In addition, manufacturers had to produce different equipment to meet various standards across the markets. In 1982, work began to develop a European standard for digital cellular voice telephony when the European

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Conference of Postal and Telecommunications Administrations (CEPT) created the Groupe Spécial Mobile committee and provided a permanent group of technical support personnel, based in Paris. Five years later in 1987, 15 representatives from 13 European countries signed a memorandum of understanding in Copenhagen to develop and deploy a common cellular telephone system across Europe, and European Union rules were passed to make GSM a mandatory standard. The decision to develop a continental standard eventually resulted in a unified, open, standard-based network which was larger than that in the United States. In 1989, the Groupe Spécial Mobile committee was transferred from CEPT to the European Telecommunications Standards Institute(ETSI). In parallel, France and Germany signed a joint development agreement in 1984 and were joined by Italy and the UK in 1986. In 1986 the European Commission proposed reserving the 900 MHz spectrum band for GSM.

Arm processor review:

ARM stands for Advanced RISC Machines. It is a 32 bit processor core, used for high end application. It is widely used in Advanced Robotic Applications. It performs number of instruction in a single cycle compare with other controllers it have advanced features. The Arm 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.

Due to their tiny size and low power consumption, LPC2141/42/44/46/48 are ideal for applications where miniaturization is a key requirement, such as access control and point-of-sale. Serial communications interfaces ranging from a USB 2.0 Full-speed device, multiple UARTs, SPI, SSP to I2C-bus and on-chip SRAM of 8 kB up to 40 kB, make these devices very well suited for communication gateways and protocol converters, soft modems, voice recognition and low end imaging, providing both large buffer size and high processing power.

History and Development:

- ARM was developed at Acron Computers ltd of Cambridge, England between 1983 and 1985.
- RISC concept was introduced in 1980 at Stanford and Berkley.
- ARM ltd was found in 1990.
- ARM cores are licensed to partners so as to develop and fabricate new microcontrollers around same processor cores.

Key features:

1. 16-bit/32-bit ARM7TDMI-S microcontroller in a tiny LQFP64 package.
2. 8 kB to 40 kB of on-chip static RAM and 32 kB to 512 kB of on-chip flash memory.
   128-bit wide interface/accelerator enables high-speed 60 MHz operation.
3. In- System Programming/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.

Historical Background:

The invention of the transistor at Bell Telephone Laboratories in 1947 sparked a fast-growing microelectronic technology. Jack Kilby of Texas Instruments built the first integrated circuit (IC) in 1958 using germanium (Ge) devices. It consisted of one transistor, three resistors, and one capacitor. The

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IC was implemented on a sliver of Ge that was glued on a glass slide. Later that same year Robert Noyce of Fairchild Semiconductor announced the development of a planar double-diffused Si IC. The complete transition from the original Ge transistors with grown and alloyed junctions to silicon (Si) planar double-diffused devices took about 10 years. The success of Si as an electronic material was due partly to its wide availability from silicon dioxide (SiO2) (sand), resulting in potentially lower material costs relative to other semiconductors.

Related work:

The use of mobile devices for gathering traffic information is not a new concept; several works indicate the feasibility of an ITS based only on location samples gathered by mobile phones. An early work describes an analytical method for evaluating real-time ITS based on data collected from GPS devices in probe vehicles: a 3-5% of penetration in the traffic flow is enough for adequate traffic estimation. Recent experiments with a system implemented solely on mobile phones show encouraging results for the feasibility and the accuracy of the traffic estimation (compared to that obtained by fixed sensors): a 2-3% penetration of mobile phones running the application in the total car flow suffices for accurate estimation of the average speed. Moreover, commercial navigation applications already integrate location samples from mobile phones in their algorithms for route guidance .

However, security and privacy of similar traffic systems remain open challenges and research is conducted in several projects. Successive location updates by a smart phone, even without any identifier, contain spatial and temporal correlation that can be used as indirect identifiers. These can be exploited to reconstruct user paths with tracking techniques. Then traces can be processed and matched in order to infer frequently visited places, e.g., home or workplace, and finally reveal the user identity. To mitigate such threats, several solutions using cloaking techniques or privacy preserving sampling techniques have been proposed.

These solutions are complementary to our proposal. In this paper we do not consider this kind of threat against the dataset of location samples. Rather, our goal is to guarantee the anonymity of the location samples and protect the system security. Relevant research in security is conducted for vehicular communication systems .Multiple short-term anonymized certificates, termed pseudonyms, can provide authentication while enhancing location privacy. These certificates are used for a short time and then have to be changed .Group signatures are also proposed, in order to reduce the overhead of pseudonym management. As they are significantly costlier (in terms of communication and computation overhead) than classic public key cryptography, special care must be taken for the overall secure vehicular communications system design. Group signatures are also used in credentials systems such as Idemix that provide anonymity for authenticated transactions to services. In our proposed architecture we will use group signatures; based on initial implementation results.

AMBA BUS ARCHITECTURE:

The ARM7 Thumb family processors are designed for use with the Advanced Microcontroller Bus Architecture (AMBA) multi-master on-chip bus architecture. AMBA is an open standard that describes a strategy for the interconnection and management of functional blocks that makes up a System-on-Chip (SoC).

The AMBA specification defines three buses:

- Advanced System Bus (ASB)
- Advanced High-performance Bus (AHB)
- Advanced Peripheral Bus (APB).

ASB and AHB are used to connect high-performance system modules. APB offers a simpler interface for low-performance peripherals.

3.5 ADVANTAGES:

- Small device
- Lower Power Consumption

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- Simple decoding
- Higher performance
- Easy to implement an effective pipelined structure

3.6 DISADVANTAGES:

- Performance depends on compiler
- Poor code density
- RISC has a fixed size of instruction format
- Small number of instructions

3.7 APPLICATIONS:

Using the ARMv7 architecture, ARM can strengthen its position as a low-power/performance leader while conquering new markets to carry its cores up in high performance and down in the low-cost high-volume domain of the microcontroller ARM designs the technology that lies at the heart of advanced digital products, from wireless, networking and consumer entertainment solutions to imaging, automotive, security and storage devices. ARM's comprehensive product offering includes 16/32-bit RISC microprocessors, data engines, 3D processors, digital libraries, embedded memories, peripherals, software and development tools, as well as analog functions and high-speed connectivity products.

ULTRA SONIC SENSOR:

Ultrasonic sensors service the market by providing a cost effective sensing method with unique properties not possessed by other sensing technologies. By using a wide variety of ultrasonic transducers and several different frequency ranges, an ultrasonic sensor can be designed to solve many application problems that are cost prohibitive or simply cannot be solved by other sensors.Long range detection: In industrial sensing, more and more applications require detection over distance. Ultrasonic sensors detect over long ranges up to forty feet, while limit switches and inductive sensors do not.

Broad area detection:

While some photo electric sensors can detect over long distances they lack the ability to detect over a wide area without using a large number of sensors. The advantage of Migatron's ultrasonic sensors is that both wide and narrow areas can be covered. All it takes is the proper ultrasonic transducer selection.

Widest range of target materials:

only ultrasonic sensors are impervious to target material composition. The target material can be clear, solid, liquid, porous, soft, wood and any colour because all can be detected.

Non contact distance measuring:

Because sound can be timed from when it leaves the transducer to when it returns, distance measuring is easy and accurate to .05% of range which equates to +or- .002 of an inch at a distance of 4 inches. It is Migatron's continuing goal to provide ultrasonic sensors in industrially hardened packages that are electrically and electronically compatible with standard controls used in today's industrial marketplace.

LCD DISPLAY UNIT
LCD MODULE (2X16 CHARACTER)

Dot matrix LCD modules is used for display the parameters and fault condition.16 characters 2 lines display is used. It has controller which interface data's and LCD panel. Liquid crystal displays (LCD's) have materials, which combine the properties of both liquids and crystals. Rather than having a melting point, they have a temperature range within which the molecules are almost as mobile as they would be in a liquid, but are grouped together in an ordered form similar to a crystal.

An LCD consists of two glass panels, with the liquid crystal material sandwiched in between them. The inner surface of the glass plates are coated with transparent electrodes which define the character, symbols or patterns to be displayed polymeric layers are present in between the electrodes and the liquid crystal molecules to maintain a defined orientation angle. One each polarizer's are pasted outside the two glass panels.

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These polarizer's would rotate the light rays passing through them to a definite angle, in a particular direction When the LCD is in the off state, light rays are rotated by the two polarizes and the liquid crystal, such that the light rays come out of the LCD without any orientation, and hence the LCD appears transparent. When sufficient voltage is applied to the electrodes, the liquid crystal molecules would be aligned on a specific direction. The light rays passing through the LCD would be rotated by the polarizes which would result in activating/highlighting the desired characters.

Fig 3.19 LCD diagramDiagram

The LCD's are lightweight with only a few millimeters thickness. since the LCD's consume less power, they are compatible with low power electronic circuits, and can be owered for long durations .The LCD's don't generate light is needed to read the display. By using backlighting, reading is possible in the dark .The LCD's have long life and a wide operating temperature range.One of the most popular output devices for embedded electronics is LCD. The LCD interface has become very simple. This is due to the availability modules for LCDs. The LCD along with necessary controller (LCD Controller) and mounting facility is made available in the module itself. The LCD controller takes care of everything necessary for the LCD. We communicate with the LCD controller with the help of a command set provided by the manufacturer.

RELAY:

A relay is an electrically operated switch. Current flowing through the coil of the relay creates a magnetic field which attracts a lever and changes the switch contacts.

The coil current can be on or off so relays have two switch positions and they are double throw (changeover) switches. Relays allow one circuit to switch a second circuit which can be completely separate from the first. For example a low voltage battery circuit can use a relay to switch a 230V AC mains circuit. There is no electrical connection inside the relay between the two circuits, the link is magnetic and mechanical.Relays are very simple devices. There are four major parts in every realy. They are

- Electromagnet
- Armature that can be attracted by the electromagnet
- Spring
- Set of electrical contacts

MOTOR:

Motor is a device that creates motion, not an engine; it usually refers to either an electrical motor or an internal combustion engine. It may also refer to:

- Electric motor, a machine that converts electricity into a mechanical motion
- AC motor, an electric motor that is driven by alternating current
- Synchronous motor, an alternating current motor distinguished by a rotor spinning with coils passing magnets at the same rate as the alternating current and resulting magnetic field which drives it
- Induction motor, also called a squirrel-cage motor, a type of asynchronous alternating current motor where power is supplied to the rotating device by means of electromagnetic induction

DC MOTOR:

In any electric motor, operation is based on simple electromagnetism. A current carrying conductor generates a magnetic field; when this is then placed in an external magnetic field, it will experience a force proportional to the current in the conductor, and to the strength of the external magnetic field.

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As you are well aware of from playing with magnets as a kid, opposite (North and South) polarities attract, while like polarities (North and North, South and South) repel. The internal configuration of a DC motor is designed to harness the magnetic interaction between a current-carrying conductor and an external magnetic field to generate rotational motion

Every DC motor has six basic parts -- axle, rotor (a.k.a., armature), stator, commutator, field magnet(s), and brushes. In most common DC motors (and all that Beamers will see), the external magnetic field is produced by high-strength permanent magnets[1]. The stator is the stationary part of the motor -- this includes the motor casing, as well as two or more permanent magnet pole pieces. The rotor (together with the axle and attached commutator) rotate with respect to the stator. The rotor consists of windings (generally on a core), the windings being electrically connected to the commutator. The above diagram shows a common motor layout -- with the rotor inside the stator (field) magnets.

SENSOR:

A sensor (also called detectors) is a device that measures a measurable attribute and converts it into a signal which can be read by an observer or by an instrument. for example, a mercury-in-glass thermometer converts the measured temperature into expansion and contraction of a liquid which can be read on a calibrated glass tube. a thermocouple converts temperature to an output voltage which can be read by a voltmeter.

Relay:

A relay is a simple electromechanical switch made up of an electromagnet and a set of contacts. Relays are found hidden in all sorts of devices. In fact, some of the first computers ever built used relays to implement Boolean gates. In this article, we will look at how relays work and a few of their aplications. A relay is used to isolate one electrical circuit from another. It allows a low current control circuit to make or break an electrically isolated high current circuit path. The basic relay consists of a coil and a set of contacts. The most common relay coil is a length of magnet wire wrapped around a metal core. When voltage is applied to the coil, current passes through the wire and creates a magnetic field. This magnetic field pulls the contacts together and holds them there until the current flow in the coil has stopped. The diagram below shows the parts of a simple relay.

LIQUID CRYSTAL DISPLAY:

LCD stands for **L**iquid **C**rystal **D**isplay. LCD is finding wide spread use replacing LEDs (seven segment LEDs or other multi segment LEDs) because of the following reasons. The declining prices of LCDs.

1. The ability to display numbers, characters and graphics. This is in contrast to LEDs, which are limited to numbers and a few characters.
2. Incorporation of a refreshing controller into the LCD, thereby relieving the CPU of the task of refreshing the LCD. In contrast, the LED must be refreshed by the CPU to keep displaying the data.
3. Ease of programming for characters and graphics.
4. These components are “specialized” for being used with the microcontrollers, which means that they cannot be activated by standard IC circuits. They are used for writing different messages on a miniature LCD.

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Figure 4.13 LCD

A model described here is for its low price and great possibilities most frequently used in practice. It is based on the HD44780 microcontroller (Hitachi) and can display messages in two lines with 16 characters each. It displays all the alphabets, Greek letters, punctuation marks, mathematical symbols etc. In addition, it is possible to display symbols that user makes up on its own. Automatic shifting message on display (shift left and right), appearance of the pointer, backlight etc. are considered as useful characteristics

Keil Software:

It is possible to create the source files in a text editor such as Notepad, run the Compiler on each C source file, specifying a list of controls, run the Assembler on each Assembler source file, specifying another list of controls, run either the Library Manager or Linker (again specifying a list of controls) and finally running the Object-HEX Converter to convert the Linker output file to an Intel Hex File. Once that has been completed the Hex File can be downloaded to the target hardware and debugged. Alternatively KEIL can be used to create source files; automatically compile, link and covert using options set with an easy to use user interface and finally simulate or perform debugging on the hardware with access to C variables and memory. Unless you have to use the tolls on the command line, the choice is clear. KEIL Greatly simplifies the process of creating and testing an embedded application.

Projects:

The user of KEIL centers on "projects". A project is a list of all the source files required to build a single application, all the tool options which specify exactly how to build the application, and – if required – how the application should be simulated. A project contains enough information to take a set of source files and generate exactly the binary code required for the application. Because of the high degree of flexibility required from the tools, there are many options that can be set to configure the tools to operate in a specific manner. It would be tedious to have to set these options up every time the application is being built; therefore they are stored in a project file. Loading the project file into KEIL informs KEIL which source files are required, where they are, and how to configure the tools in the correct way. KEIL can then execute each tool with the correct options. It is also possible to create new projects in KEIL. Source files are added to the project and the tool options are set as required. The project can then be saved to preserve the settings. The project is reloaded and the simulator or debugger started, all the desired windows are opened. KEIL project files have the extension.

Simulator/Debugger:

The simulator/ debugger in KEIL can perform a very detailed simulation of a micro controller along with external signals. It is possible to view the precise execution time of a single assembly instruction, or a single line of C code, all the way up to the entire application, simply by entering the crystal frequency. A window can be opened for each peripheral on the device, showing the state of the peripheral. This enables quick trouble shooting of mis-configured peripherals.

Breakpoints may be set on either assembly instructions or lines of C code, and execution may be stepped through one instruction or C line at a time. The contents of all the memory areas may be viewed along with ability to find specific variables. In addition the registers may be viewed allowing a detailed view of what the microcontroller is doing at any point in time. The Keil Software 8051 development tools listed below are the programs you use to compile your C code, assemble your assembler source files, link your program together, create HEX files, and debug your target program. µVision2 for Windows™ Integrated

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Development Environment: combines Project Management, Source Code Editing, and Program Debugging in one powerful environment.

- C51 ANSI Optimizing C Cross Compiler: creates relocatable object modules from your C source code,
- A51 Macro Assembler: creates relocatable object modules from your 8051 assembler source code,
- BL51 Linker/Locator: combines relocatable object modules created by the compiler and assembler into the final absolute object module,
- LIB51 Library Manager: combines object modules into a library, which may be used by the linker,
- OH51 Object-HEX Converter: creates Intel HEX files from absolute object modules.

What's New in µVision3?

µVision3 adds many new features to the Editor like Text Templates, Quick Function Navigation, and Syntax Coloring with brace high lighting Configuration Wizard for dialog based startup and debugger setup. µVision3 is fully compatible to µVision2 and can be used in parallel with µVision2.

2 Flash Magic

Flash Magic is a tool which is used to program hex code in EEPROM of micro-controller. It is a freeware tool. It only supports the micro-controller of Philips and NXP. It can burn a hex code into that controller which supports ISP (in system programming) feature. Flash magic supports several chips like ARM Cortex M0, M3, M4, ARM7 and 8051.

Flash Magic is an application developed by Embedded Systems Academy to allow easily access the features of a microcontroller device. With this program it can erase individual blocks or the entire Flash memory of the microcontroller. The kit can be programmed through serial port using 'Flash Magic'. 'Flash Magic' is a freeware windows utility used download the hex file format onto the kit. The Flash Magic utility is provided in CD along with the KIT. If your PC does not have a serial port; use a USB to serial converter to download the hex file using the Flash Magic utility.

PROTEUS

Generally we are listening the words PCB's, PCB layout, PCB designing, ect. But what is PCB? Why we are using this PCB? We want to know about all these things as a electronic engineer. PCB means Printed Circuit Board. This is a circuit board with printed copper layout connections. These PCB's are two types. One is dotted PCB and another one is layout PCB. The two examples are shown in below.

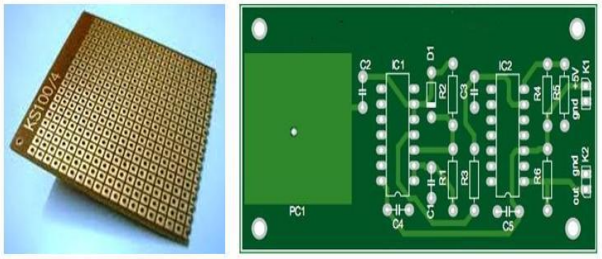

Fig 4.17 Dotted and Layout PCB

The main difference between the dotted PCB and layout PCB

In dotted PCB board only dots are available. According to our requirement we can place or insert the components in those holes and attach the components with wires and soldering lid. In this dotted PCB we can make the circuit as our wish but it is very hard to design. There are so many difficulties are there.

Those are connecting the proper pins, avoiding shot connections and etc. Coming to the layout PCB this is simple to design. First we select the our circuit and by using different PCB designing software's, design the layout of the circuit and by itching process preparing the copper layout of our circuit and solder the components in the correct places. It is simple to design, take less time to design, no shortages, looking nice and perfect.

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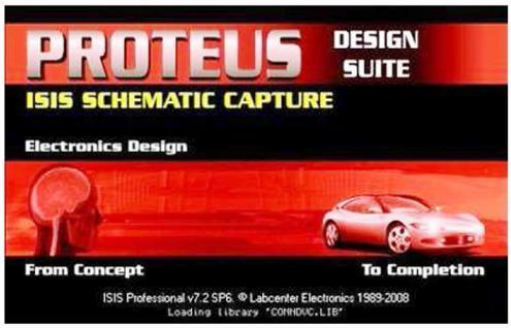

Next, a work space with interface buttons for designing circuit will appear as shown in figure below. Note that there is a blue rectangular line in the workspace; make sure that whole circuit is designed inside the rectangular space.

RESULT AND ANALYSIS:

The vehicle uses GSM , GPS systems and Sensor to Control Vehicle movement on road without human intervention . In this we are using Ultrasonic Sensors, LCD display, 3.3 Volts and Power Supply.

CONCLUSION:

Different response strategies are evaluated using dynamic path adaptive search method. As an auto-pilot car, it is capable of sensing its environment and navigating without human input .The system having the sensors to identify the environment and GPS receiver to check the position. Autonomous vehicles sense the environment and follow its path. So the vehicle will move on the proper lane. An obstacle identifier system is attached in the system to find the object approaching towards the car.

If any object approaches within range then the speed of the car will be controlled by using pulse width modulating technique It can able to update the moving location to the controller section.

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