Design and Development of Mobile Phone
For Multipurpose Application

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Abstract: The work aims in designing and construction of the intelligent cell phone with Gps navigation enabled features like tracking and speed recognition. In the current days people existence style is fully occupied using the terms like technology and innovation. An embedded product is a mix of hardware and software to carry out a dedicated task. A few of the primary devices utilized in embedded goods are Microprocessors and Microcontrollers. Microprocessors are generally known as general purpose processors because they simply accept the inputs, process it and provide the output. In comparison, a microcontroller not just accepts the information as inputs but additionally manipulates it, interfaces the information with assorted devices, controls the information and therefore finally provides the result. The “Construction of Intelligent cell phone with Gps navigation enabled features” using PIC16F877 microcontroller is definitely an exclusive project which is often used to manage the devices within an industry using PC hyper terminal. Construction of Intelligent cell phone with Gps navigation enabled features.

Keywords: Microcontroller; Mobile Phone; GPS; GSM;

I. INTRODUCTION

Everyone knows the revolutions the mobile technologies have introduced into our existence. Within an average every nine out of ten are transporting a cell phone as well as the illiterate persons have greater awareness on the whole process of this cell phones. So rather of creating these cell phones for calling and messaging purpose we are able to add couple of features like enabling the Gps navigation and supplying the ability for tracking etc., The interior architecture of the cell phone includes a GSM modem, which is capable of doing transporting a Sim, Gps, Programmable aboard computer. The aboard computer is exactly what we call like a microcontroller is programmed using Embedded C language featuring it’s a string of group of instructions to manage different other modules within the project. Gps navigation may be the acronym for gps which has got the information in the satellites and offers exactly the same towards the controller [1]. The Gps navigation provides us the information like location, time, and speed. The controller accepts these data inside a sequence of steps as reported by the instruction set which we offer towards the controller.

II. HARDWARE DESCRIPTION

Within this chapter the block diagram from the project and style facet of independent modules are thought. The primary blocks of the project are: Micro controller (16F877), Reset button, Very oscillator, Controlled power (RPS), Brought indicator, Touch screen, GSM modem. Gps navigation module. Micro controller: Microcontrollers: Conditions that people find inside us today in the area of microcontrollers had their beginnings in the introduction of technology of integrated circuits. This development makes it easy to store thousands and thousands of transistors into one nick. Which was a prerequisite for manufacture of microprocessors, and also the first computers were created with the addition of exterior peripherals for example memory, input-output lines, timers along with other. Further growing of the level of the package led to development of integrated circuits. These integrated circuits contained both processor and peripherals. PIC Microcontrollers: PIC means Peripheral Interface Controller provided by Microchip Technology to recognize its single-nick microcontrollers. These units happen to be very effective in 8-bit microcontrollers. The primary reason is the fact that Microchip Technologies have continuously upgraded the unit architecture and added needed peripherals towards the microcontroller to match customers’ needs. Very oscillator: The very oscillator speeds that may be attached to the PIC microcontroller vary from Electricity to 20 MHz. While using CCS C compiler normally 20 MHz oscillator is going to be used and also the cost is extremely cheap. The 20 MHz very oscillator ought to be associated with about 22pF capacitor. Please make reference to my circuit schematic. Controlled Power: Power is really a way to obtain electrical energy [2]. A tool or system that supplies electrical or other kinds of energy for an output load or number of loads is known as a power unit or PSU. The word is most generally put on electrical power supplies, less
frequently to mechanical ones, and barely to other people. An energy supply can include an electrical distribution system in addition to primary or secondary causes of energy for example: Conversion of 1 type of electrical energy to a different preferred form and current, typically involving converting AC line current to some well-controlled lower-current Electricity for electronics. Low current, low power Electricity power units are generally integrated using the devices they provide, for example computers and household electronics. Brought: An easy-emitting diode (Brought) is really a semiconductor source of light. LEDs are utilized as indicator lamps in lots of devices, and therefore are more and more employed for lighting. Introduced like a practical electronic component in 1962, early LEDs released low-intensity sore point, but modern versions can be found over the visible, ultraviolet and infrared wavelengths, with high brightness. GSM modem: Global System for Mobile Communication (GSM): GSM, which means Global System for Mobile communications, reigns (important) because the world’s most broadly used mobile phone technology [3]. Mobile phones make use of a mobile phone service carrier’s GSM network by trying to find mobile phone towers within the nearby area. Global system for mobile communication (GSM) is really a globally recognized standard for digital cellular communication. GSM is the a standardization group established in 1982 to produce a common European mobile telephone standard that will formulate specifications for any pan-European mobile cellular radio system operating at 900 MHz. It's believed that lots of countries outdoors of Europe will join the GSM partnership. GSM - Architecture: A GSM network includes several functional entities whose functions and interfaces are defined. The GSM network could be split into following broad parts. The Mobile Station (MS), the Bottom Station Subsystem (BSS), the Network Switching Subsystem (NSS), the Operation Support Subsystem (OSS).

![Image](image_url)

**Fig.1. Proposed system**

### III. SOFTWARE DESCRIPTION

This project is implemented using following software’s: Express PCB - for designing circuit, PIC C compiler - for compilation part, Proteus 7 (Embedded C) - for simulation part. Express PCB: Breadboards are ideal for prototyping equipment because it enables great versatility to change a design if needed nevertheless the final product of the project, ideally must have a neat PCB, couple of cables, and survive a shake test. Not just is really a proper PCB neater but it’s also stronger because there are no cables which could yank loose. Express PCB is really a software program to create PCBs particularly for manufacture by the organization Express PCB (not one other PCB maker accepts Express PCB files). It's very simple to use, however it comes with several limitations. It may be likened too much more of a toy a professional CAD program. It features a poor part library (which we are able to deal with) It can't import or export files in numerous formats It can't be employed to make prepare boards for DIY production. Express PCB has been utilized to create many PCBs (some layered with surface-mount parts. Print PCB patterns and employ the toner transfer method by having an Etch Resistant Pen to create boards. However, Express PCB doesn't have a pleasant print layout. This is actually the procedure to create in Express PCB and cleanup the patterns so that they print nicely. Design Factors: Before beginning a task there are many methods to design a PCB and something should be selected to match the project’s needs. When creating a PCB you will find the choice of creating a single sided board, or perhaps a double sided board. Single sided boards are less costly to create and simpler to etch, but more difficult to create for big projects. If lots of parts are used in a tiny space it might be difficult to create a single sided board without jumper over traces having a cable. While there’s technically no problem with this particular, it ought to be prevented when the signal travelling within the traces is sensitive (e.g. audio signals). A dual sided board is much more costly to create professionally, harder to etch on the DIY board, but helps make the layout of components a great deal smaller sized and simpler. It ought to be noted when a trace is running on top layer, seek advice from the constituents to make certain you will get to the pins having a soldering iron. PIC Compiler: PIC compiler is software used in which the machine language code is presented and compiled. After compilation, the device source code is changed into hex code which is dumped in to the microcontroller for more processing. PIC compiler will also support C language code. Proteus: Proteus is software which accepts only hex files. When the machine code is changed into hex code that hex code needs to be dumped in to the microcontroller which is made by the Proteus [4]. Proteus is really a programmer which itself includes a microcontroller inside it apart from the main one which is programmed. This microcontroller includes a center in it written in a
way it accepts the hex file in the pic compiler and dumps this hex file in to the microcontroller which is recognized as. Advantages: Efficient design, Existence time is much more when compared with existing devices. Low power consumption. Lengthy existence. Highly sensitive. Automatic position identification using Gps navigation module. Very useful in tracking and being able to access contacts from remote mobile. It may instantly send SMS messages in line with the preset conditions [5]. The work “Construction of Intelligent cell phone with Gps navigation enabled features” was utilized to create a smart cell phone with Gps navigation enabled features. The machine was utilized for tracking and being able to access contacts from remote cell phone.

![Fig.2.Opening a new file using PIC C compiler](image)

IV. CONCLUSION

Integrating features of all of the hardware components used happen to be coded in it. Existence of every module continues to be reasoned out and placed carefully, thus adding towards the best working from the unit. Next, using highly advanced IC’s with the aid of growing technology, the work continues to be effectively implemented. Thus the work continues to be effectively designed and tested. Future Scope: Our project “Construction of Intelligent cell phone with Gps navigation enabled features” is principally meant to design a smart cell phone with Gps navigation features. Gps navigation may be the acronym for gps which has got the information in the satellites and offers exactly the same towards the controller. The interior architecture of the cell phone includes a GSM modem, which is capable of doing transporting a Sim, Gps, and Programmable aboard computer. The aboard computer is exactly what we call like a microcontroller is programmed using Embedded C language featuring it’s a string of group of instructions to manage different other modules within the project. The work could be extended with the addition of more features like call forwarding in the system etc. This technique may also be modified by utilizing touch screen and GLCD based keypad.

V. REFERENCES