GPS AND GSM BASED ANTI-THEFT VEHICLE SYSTEM

B.E. Dissertation

Submitted in partial fulfillment of the requirement of

University of Mumbai

For the Degree of

Bachelor of Engineering
(Electronics & Telecommunication Engineering)

by

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Bachelor of Engineering
in
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to the
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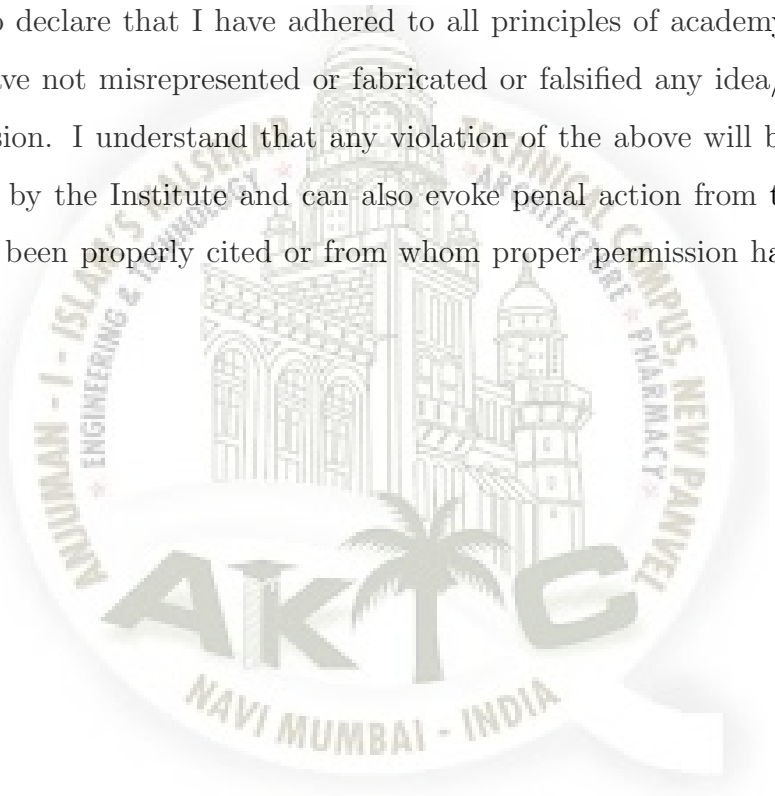

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Abstract

Currently almost of the public having an own vehicle, theft is happening on parking and sometimes driving insecurity places. The safe of vehicles is extremely essential for public vehicles. Vehicle tracking and locking system installed in the vehicle, to track the place and locking engine motor. The place of the vehicle identified using Global Positioning system (GPS) and Global system mobile communication (GSM). These systems constantly watch a moving Vehicle and report the status on demand. When the theft identified, the responsible person send SMS to the microcontroller, then microcontroller issue the control signals to stop theengine motor. Authorized person need to send the password to controller to restart the vehicle and open the door. This is more secured, reliable and low cost.

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Chapter 1

Introduction

1.1 Description

In the last few decades, India has progressed at such an enormous rate that many companies have strongly established themselves here. These companies bring a huge amount of workforce with them. Arranging transportation to such a huge mass is a cumbersome task involving many intricacies. Generally, this transport is arranged through the local transport vendors on a yearly contract basis, recently happen mishaps such as burglary, rape cases etc. The development of satellite communication technology is easy to identify the vehicle locations. Vehicle tracking systems have brought this technology to the day-to-day life of the common person. Today GPS used in cars, ambulances, fleets and police vehicles are common sights on the roads of developed countries. All the existing technology support tracking the vehicle place and status The GPS/GSM Based System is one of the most important systems, which integrate both GSM and GPS technologies. It is necessary due to the many of applications of both GSM and GPS systems and the wide usage of them by millions of people throughout the world [1]. This system designed for users in land construction and transport business, provides real-time information such as location, speed and expected arrival time of the user is moving vehicles in a concise and easy-to-read format. This system may also useful for communication process among the two points. Currently GPS vehicle tracking ensures their safety as travelling. This vehicle tracking system found in clients vehicles as a theft prevention and rescue device. Vehicle owner or Police follow the signal emitted by the tracking system to locate a robbed vehicle in parallel the stolen vehicle engine speed going to decreased and pushed to off. After

switch of the engine, motor cannot restart without permission of password. This system installed for the four wheelers, Vehicle tracking usually used in navy operators for navy management functions, routing, send off, on board information and security. The applications include monitoring driving performance of a parent with a teen driver. Vehicle tracking systems accepted in consumer vehicles as a theft prevention and retrieval device. If the theft identified, the system sends the SMS to the vehicle owner. After that vehicle owner sends the SMS to the controller, issue the necessary signals to stop the motor. In this paper, the reviewed related technology in working. At present, almost of the public having their own vehicle, burglary is happening in insecurity places like vehicle parking, driving, etc. The protection of vehicles is very necessary for public transportation. The vehicle is tracing and security system fixed in the vehicle to trace the place and locking the vehicles engine motor. The location of the vehicle recognized using Global Positioning system and Global system mobile communication. These two systems continually watch a moving vehicle and report the position on request. When the burglary recognized, the responsible person sends an SMS to the microcontroller, then microcontroller issue the control signals to halt the engine motor. Authorized person needs to send the PIN to controller to restart the vehicle and open the door. This is more protected, trustworthy and low-cost.

1.2 Proposed System

The proposed system is used for positioning and navigating the vehicle with an accuracy of 10 m. The Exact location is indicated in the form of latitude and longitude along with the exact Navigated track on Google map. The system tracks the location of particular vehicle and sends to users mobile in form of data and also to micro-controller. The arrived data, in the form of latitude and longitude is used to locate the Vehicle on the Google maps and also we can see the output on the LCD.

1.3 Vehicle Tracking Features

It is mainly benefit for the companies which are based on transport system. Since it can show the position of all vehicles in real time, so that they can create the expected data accordingly. These tracking system can store the whole data where the vehicle had gone, where did it stop, how much time it take at every stop and can create whole data analysis. It is also used in buses and trains, to estimate how far are they, how much time it takes for them to come to a particular stop. These systems are used to data capture, data storage, data analysis and finally data transfer. By adding additional sensors such as temperature sensor and infrared sensors the system can be enabled to detect fire , theft and obstacles.

Chapter 2

Literature Review

2.1 Vehicle Tracking Using Satellite Application

Abstract: This proposed work is an attempt to design and develop a smart anti-theft system that uses GPS and GSM system to prevent theft and to determine the exact location of vehicle.. GSM system is also installed in the vehicle for sending the information to the owner of the vehicle because GPS system can only receive the vehicle location information from satellites.

2.2 Android Mobile Based Security For Bike Ignition

Abstract: In this project using an android mobile access system for a vehicle will be implemented. Using this project the access to a bike or car can be controlled using mobile module. For this an embedded system and android device is used for implementation of this project. This project proposes a system of monitoring and controlling the vehicle by an authorized person by using most advanced technologies. This Bluetooth receiver is further connected to a microcontroller that controls the connection to the ignition of the bike. Hence the bike can only be started using a proper input on receiving signal from the android device works according to the received command. Else the supply to the ignition of the bike is cut off.

2.3 Problem Statement

1. Vehicle Security on previous system was not achieved completely due to in accurate GPS server response.

2. Due to network problem people might face problem on their internet access due to which this service may get halt.

3. Sometimes connecting to the server through GPRS due to network errors which results in providing real time location data delayed.

4. Any security solution with static configuration would not be sufficient

2.4 Project Overview

The project is designed to find out the exact location of any vehicle, and intimate the position of the concerned authority about through an SMS and Also Displays the same on the LCD. This system includes a GPS modem which retrieves the location of a vehicle in terms of its longitude and latitude.

Chapter 3

Methodology

3.0.1 Concept and overview

This vehicle tracking system takes input from GPS and send it through the GSM module to desired mobile/laptop using mobile communication. Vehicle Tracking System is one of the biggest technological advancements to track the activities of the vehicle. The security system uses Global Positioning System GPS, to find the location of the monitored or tracked vehicle and then uses satellite or radio systems to send to send the coordinates and the location data to the monitoring center. At monitoring center various softwares are used to plot the Vehicle on a map. In this way the Vehicle owners are able to track their vehicle on a real-time basis. Due to real-time tracking facility, vehicle tracking systems are becoming increasingly popular among owners of expensive vehicles.

3.1 Block diagram

The block diagram of the vehicle tracking system is shown below. The block diagram shows the overall view of the system. The blocks that are connected here are Microcontroller, LCD display, GPS, GSM, Power supply, Infrared sensor, Fire detector.

Figure 3.1: Block Diagram

3.1.1 Block diagram description

In this Project it is proposed to design an embedded system which is used for tracking and positioning of any vehicle by using Global Positioning System (GPS) and Global system for mobile communication (GSM). In this project 8052 microcontroller is used for interfacing to various hardware peripherals. The current design is an embedded application, which will continuously monitor a moving Vehicle and report the status of the Vehicle on demand. For doing so an 8052 microcontroller is interfaced serially to a GSM Modem and GPS Receiver. A GSM modem is used to send the position (Latitude and Longitude) of the vehicle from a remote place. The GPS modem will continuously give the data i.e. the latitude and longitude indicating the position of the vehicle. The GPS modem gives many parameters as the output, but only the NMEA data coming out is read and displayed on to the LCD. The same data is sent to the mobile at the other end from where the position of the vehicle is demanded. An EEPROM is used to store the data received by GPS receiver. The hardware interfaces to microcontroller are LCD display, GSM modem and GPS Receiver. In order to interface GSM modem and GPS

Receiver to the controller, a MUX is used. The design uses RS-232 protocol for serial communication between the modems and the microcontroller. A serial driver IC is used for converting TTL voltage levels to RS-232 voltage levels. Different types or sensors such as infrared sensors and fire detector are used for detecting different types of problem encountered in the vehicle such as theft, accident, fire warning etc. In any of these cases messages will be automatically send to the intended receiver. When a request by user is sent to the number at the modem, the system automatically sends a return reply to that particular mobile indicating the position of the vehicle in terms of latitude and longitude. A Program has been developed which is used to locate the exact position of the vehicle and also to navigated track of the moving vehicle on Google Map.

3.2 Circuit Diagram

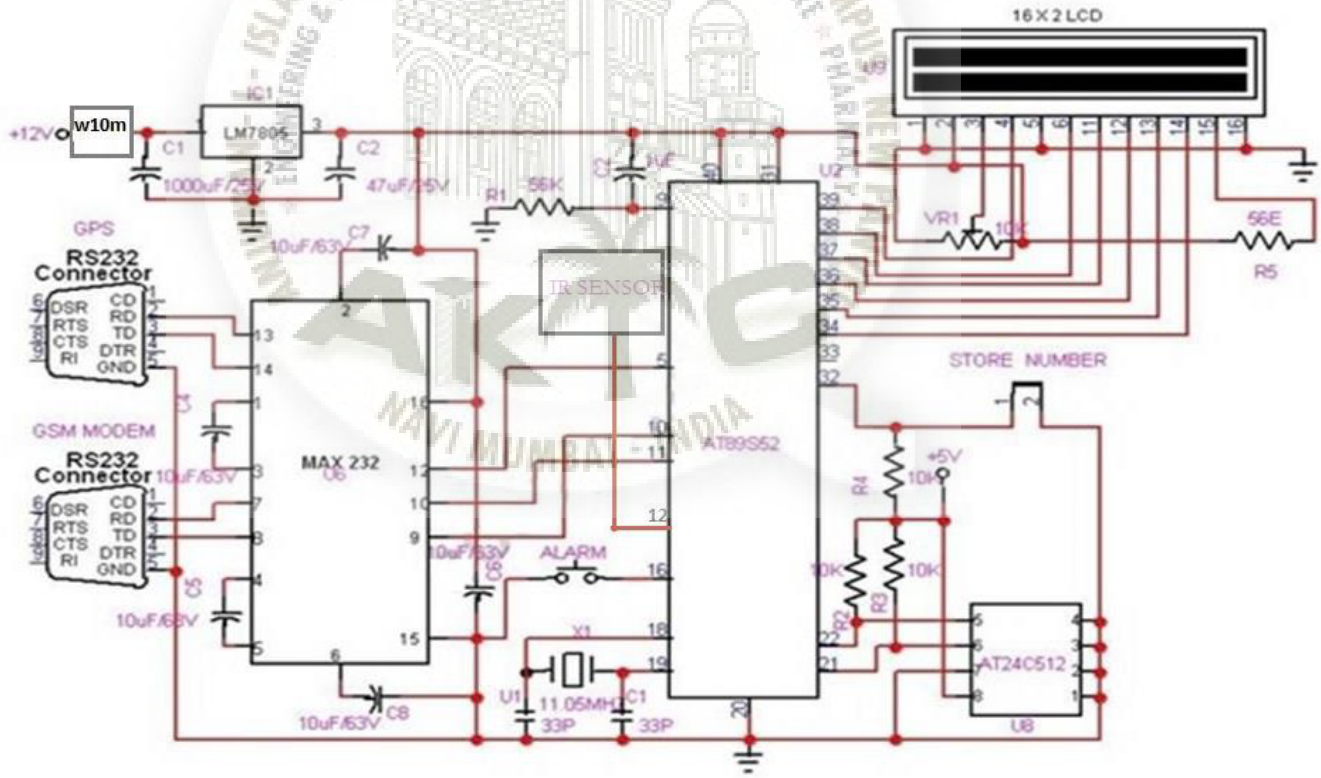

Figure 3.2: Circuit Diagram

3.3 Working

The project consists of GPS receiver and GSM modem with a micro controller. The whole system is attached to the vehicle. In the other end (main vehicle station) one GSM mobile phone is attached to the computer with VB application. So the GPS system will send the longitudinal and altitude values corresponding to the position of vehicle to GSM Modem. Imagine the bus has left Bangalore at 6 o clock in the morning. If the officer in charge for that vehicle wants to know where the vehicle is, he will come to the computer and click on the vehicle number on the VB program .The VB program will send an SMS to the vehicle number.

The SMS sent would come through the GSM service provider and then reach the vehicle, which is travelling, because the vehicle has a GSM device with sim card. This GSM modem will receive the SMS and send to the microcontroller in the vehicle. The microcontroller will receive this SMS and compare the password and the command. If every thing matches then it will perform the request required by the office.

A place name is assigned for each longitude & latitude. The GSM receiver in the vehicle office receives these data & gives to the PC through serial port. The VB program in the PC checks this data with its database & displays the details of the vehicle on the screen. The device is password controlled i.e. person who knows the device password only able to operate. In case of any mishaps such as fire , theft or obstacle ,th e device will automatically will send an alert to the registered number,i.e, the number that is feeded into the memory of microcontroller.

3.4 Flow Diagram

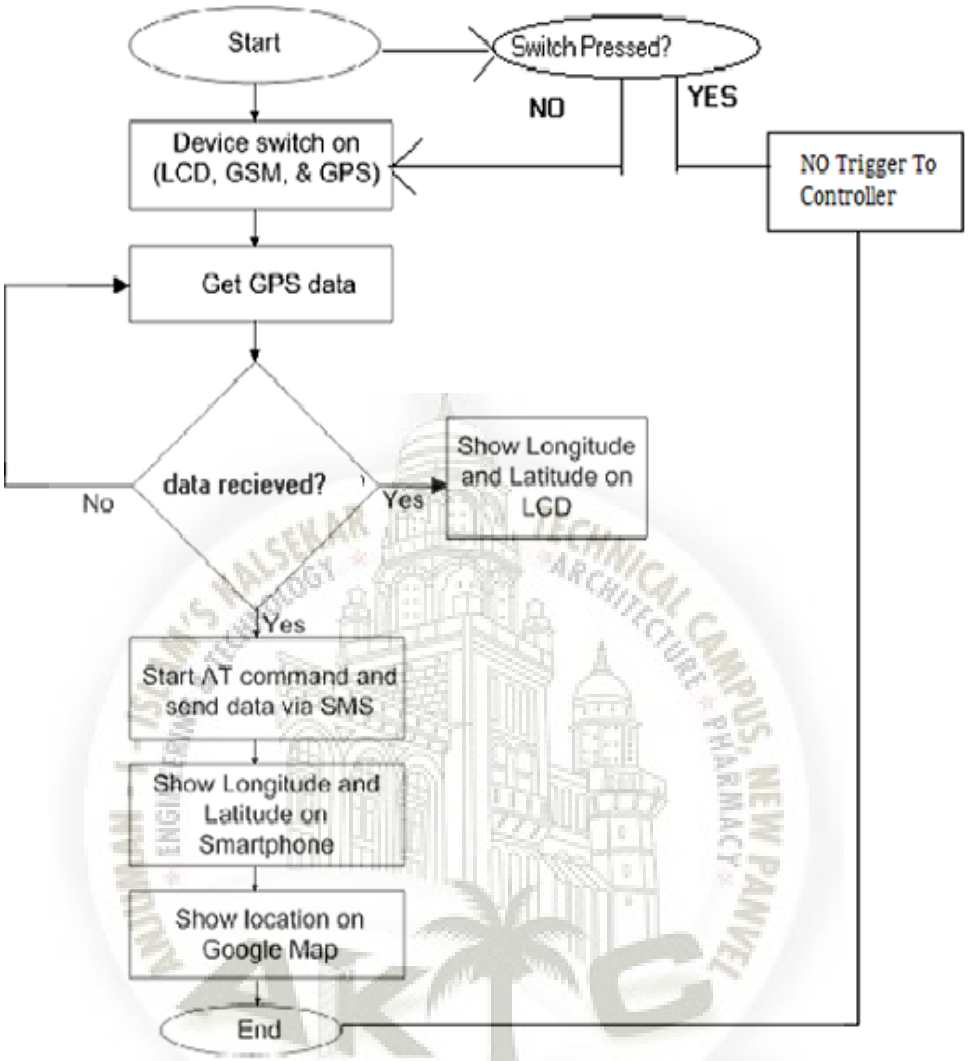

Figure 3.3: Flow Diagram

3.5 PCB Layout

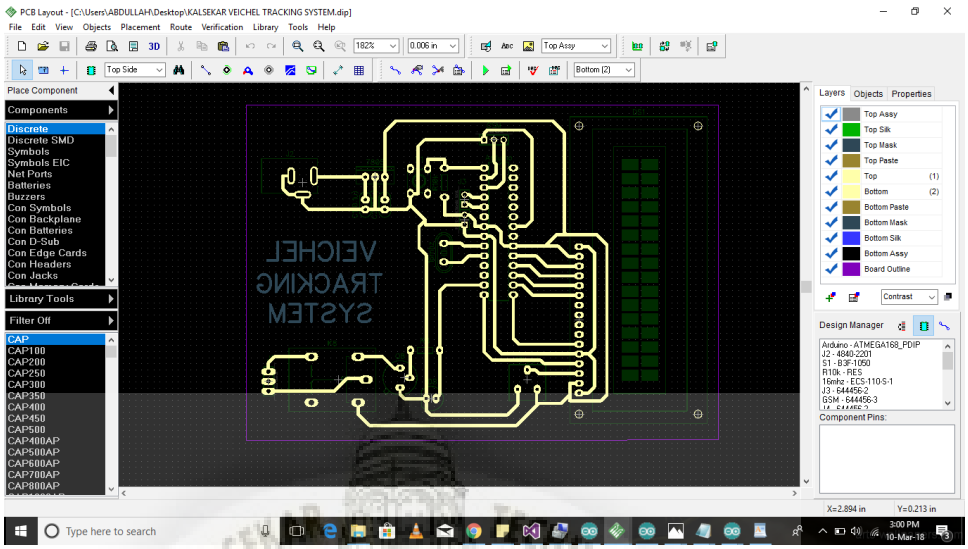

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Figure 3.4: PCB layout 1

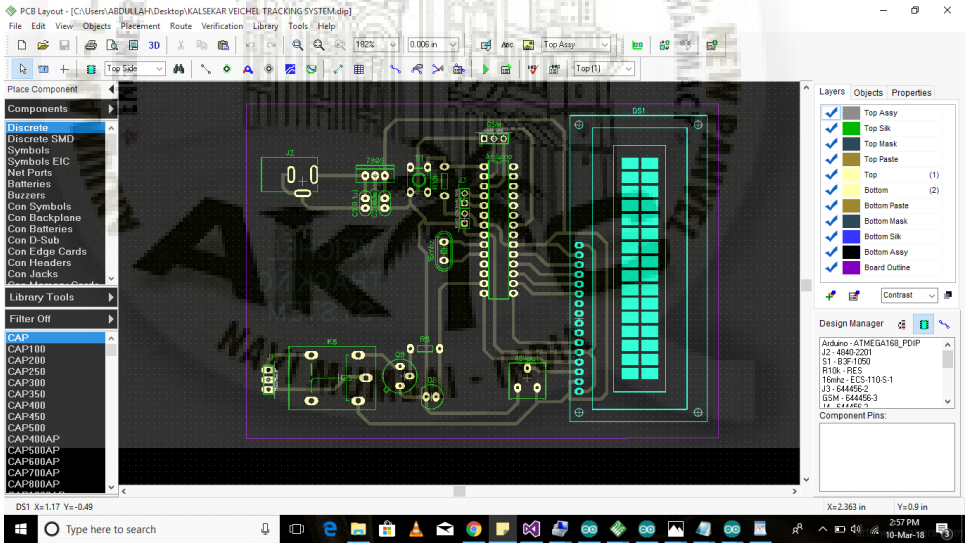

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Figure 3.5: PCB layout 2

Chapter 4

Technical Details

4.1 Software details

4.1.1 Arduino Compiler

The Arduino IDE is a cross-platform application written in Java, and is derived from the IDE for the Processing programming language and the Wiring project. It is designed to introduce programming to artists and other newcomers unfamiliar with software development. It includes a code editor with features such as syntax highlighting, brace matching, and automatic indentation, and is also capable of compiling and uploading programs to the board with a single click. There is typically no need to edit make files or run programs on a command-line interface. Although building on command-line is possible if required with some third-party tools such a Ino. The Arduino IDE comes with a C/C++ library called "Wiring" (from the project of the same name), which makes many common input/output operations much easier. Arduino programs are written in C/C++.

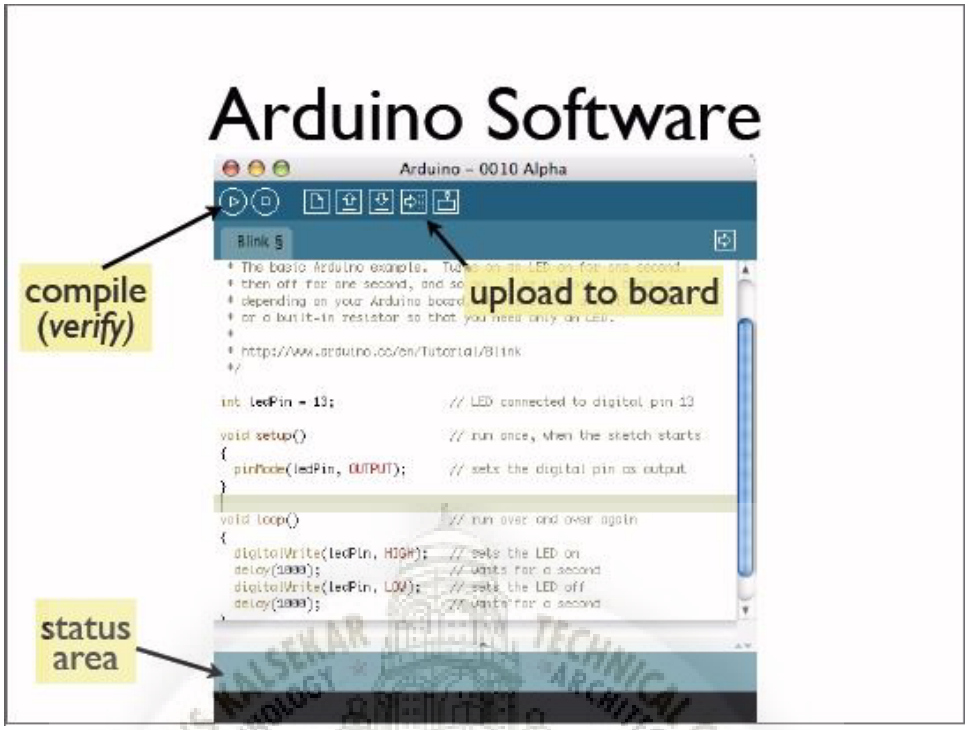

Figure 4.1: Arduino

4.1.2 DIP trace

DipTrace is an EDA/CAD software for creating schematic diagrams and printed circuit boards. The developers provide a multi-lingual interface and tutorials (currently available in English and 21 other languages). DipTrace has 4 modules: schematic capture editor, PCB layout editor with built-in shape-based autorouter and 3D-preview & export, component editor, and pattern editor.

Figure 4.2: Diptrace

4.1.3 Android Studio Development Tool

Android Studio is the IDE for Android that was announced in May 2013 at the Google I/O developers event, and is intended as an alternative to Eclipse. At the time of this writing, Android Studio is currently in Early Access Preview, with the most recent version being 0.0.5. At this time, Android Studio is not ready for full end-to-end Android application development, but should be ready in the coming months. I highly advise you review this chapter, as this is where Android development is migrating to in the future. Android Studio is based on the Java IDE called IntelliJ. If youve worked with other products by JetBrains (developer of IntelliJ), such as RedMine, PyCharm, PhpStorm, WebStorm, or AppCode, you will find yourself at home. All IntelliJ products share the same shell IDE, which youll see as soon as you open up Android Studio. In this chapter, I intend to familiarize you with Android Studio and show how you can use it for Android development. Although Android Studio is a brand new IDE, it is important to note that most of your IDE skills from Eclipse apply to Android Studio as well. Most of the tooling in Android Studio is very similar to Eclipse, such as shortcuts, designers, and code editors. Youll still export signed APKs, view logcat, and edit code virtually the same way in Android Studio as if you were in Eclipse. Think of Android Studio like this: if Eclipse were a trusty old power drill used in construction, Android Studio is the new cordless highpowered version of that same drill. Android Studio has some of the same options, and some new ones that youll need to familiarize yourself with. In the end, youll still feel comfortable enough to use the tool to get the desired resultan Android app.

Installing Android Studio

Google has made installing Android Studio as simple as possible. Just visit the Android Studio page and download the installer for your platform. Supported platforms include Windows, Mac OS X, and Linux. Follow the installation instructions for your platform to install the application. Installation instructions are not provided in this chapter because installation instructions change often. If you encounter issues, please visit the Android Studio installation page.

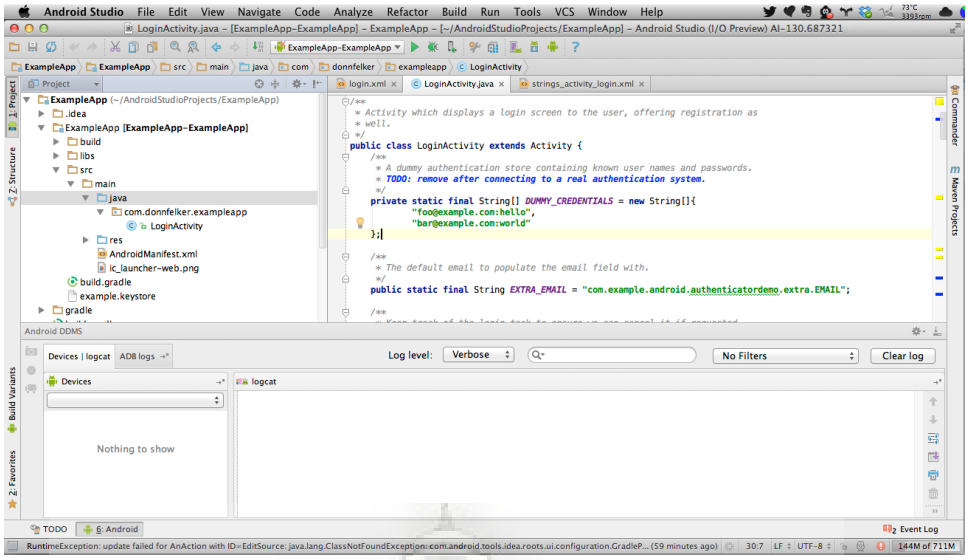

Figure 4.3: Android Studio with the Editor, Project, and Android panels

Default Project Location

After installing Android Studio, you can create a new project and define a destination location for the project files. If you dont explicitly define a location for your project, Android Studio will place your files into the /AndroidStudioProjects folder in the current users folder on your machine.

Bundled SDK

Android Studio comes bundled with its own version of the Android SDK, which is pre-configured to be used with Android Studio upon installation. On Mac OS X, it is located in the package contents for the application, as I determined by choosing Android Studio Show Package Contents (see Figure 6-2) and checking the resulting screen (as shown in Figure 6-3). This means that if you already have an SDK installed, Android Studio will not use the previously installed SDK by default. If you would like to use the existing SDK on your machine, follow these steps from Stack Overflow.

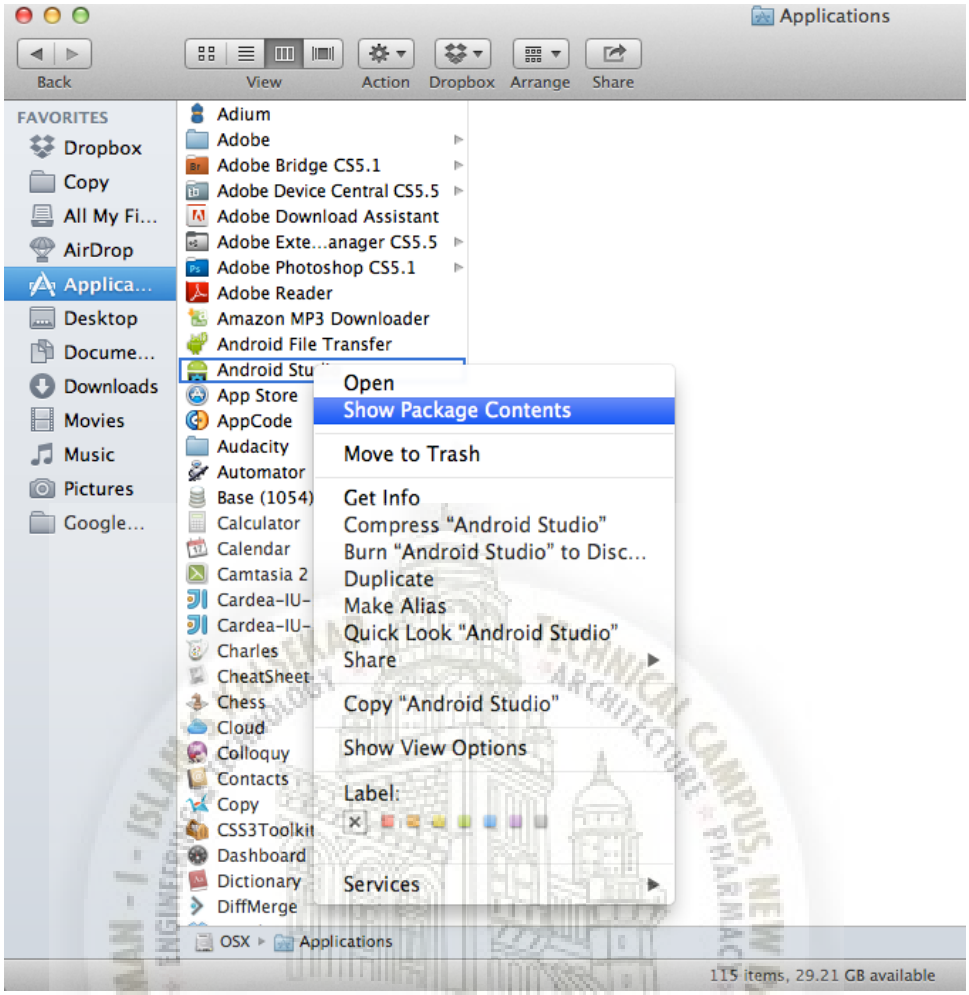

Figure 4.4: Showing the package contents of the Android Studio application

Anatomy of the Android Studio IDE

The Android Studio IDE is comprised of a vast array of panels, tools, and functions to help you become as productive as possible at developing Android applications. Ill cover the most common panels, windows, and toolbars with which youll be interacting.

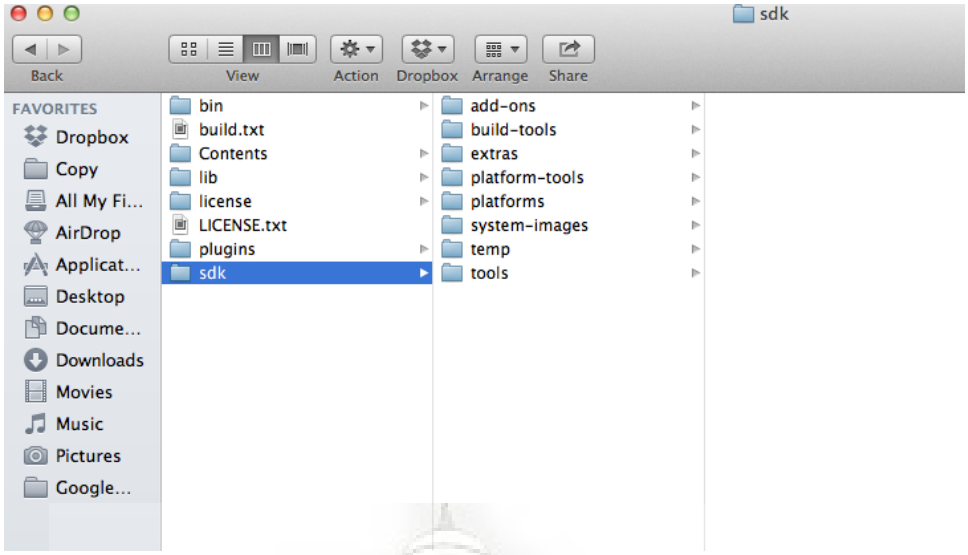

Figure 4.5: The SDK folder in the Android Studio package contents

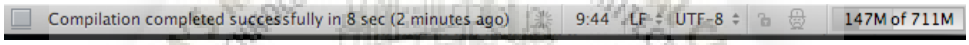

Figure 4.6: The Android Studio status bar

Running and Debugging an Android Project

When youre ready to deploy your app to a device or an emulator to test and/or debug it (see Debugging on page 98), you can easily do so with Android Studio. The three various methods for this are Run, Debug, and Attach Debugger to Android Process. All three of these commands are available via the Run menu or the main toolbar in Android Studio.

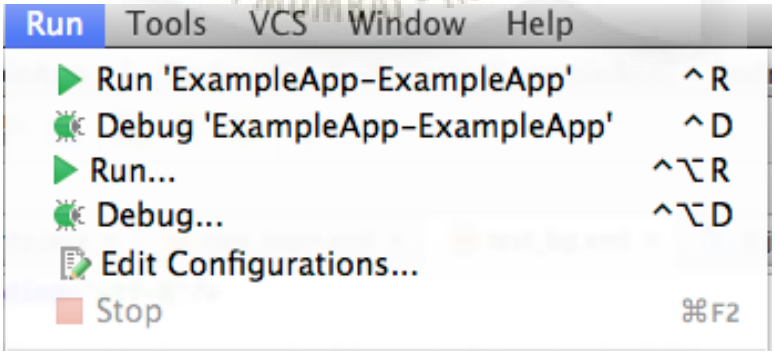

Figure 4.7: The run menu

To run an Android app on the currently connected device, select Run from the Run menu or press the Run button in the toolbar. This command will build the Android

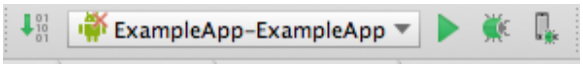

Figure 4.8: The toolbar run action

application and deploy it to the currently attached device. To debug an Android app on the currently connected device, select Debug from the Run menu or click the debug icon in the toolbar. This command will build the Android app and deploy it to the currently attached device, and attach the debugger to it. At this point, if any breakpoints are set, Android Studio will stop execution so that you can inspect your runtime environment for debugging. Another wildly useful tool is the Attach Debugger to Android Process command. This is mainly used when you need to start your app and navigate through a series of steps before attaching the debugger at a particular execution point (perhaps right before you click a button or before you navigate to a new screen). This tool allows you to quickly flow through your app and then set the breakpoint, instead of having the debugger running the entire time. To attach the debugger to your currently running app, install the app with the run command as outlined earlier and then select Run Attach Debugger to Android Process or press the Attach Debugger to Android Process icon in the toolbar.

Layout Designer and Layout Preview

Android Studio ships with two graphical tools to help you lay out your user interface: Layout Designer and Layout Preview. Layout Designer lets you arrange Views on the screen by dragging and dropping, while Layout Preview lets you see how your screen looks while you are editing your XML resources.

Creating New Android Components

A very common task during Android development is to create new components for the app. You can quickly accomplish this in Android Studio by right-clicking on the package name and selecting New Android Component, as shown in Figure 6-9, or by pressing Cmd + N on Mac, or Ctrl + N on Windows/Linux while your package name is highlighted in the src directory.

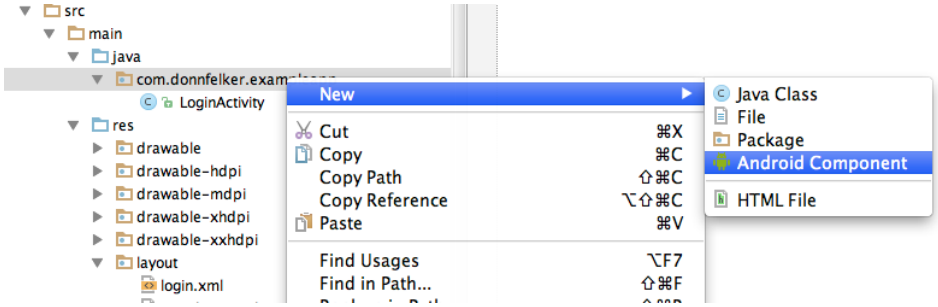

Figure 4.9: New Android component creation

4.1.4 Google Maps

Google Maps is a desktop and mobile web mapping service application and technology provided by Google, offering satellite imagery, street maps, and Street View perspectives, as well as functions such as a route planner for traveling by foot, car, bicycle (beta test), or with public transportation. Also supported are maps embedded on third-party websites via the Google Maps API,[1] and a locator for urban businesses and other organizations in numerous countries around the world. Google Maps satellite images are not updated in real time; however, Google adds data to their Primary Database on a regular basis. Google Earth support states that most of the images are no more than 3 years old.

Figure 4.10: Google Map Icon

4.2 Component List

4.2.1 Power Supply

It consists of step down transformer, bridge rectifier, capacitors and voltage regulator ICs. 230V AC is converted to 12V DC using transformer and bridge rectifier. This 12VDC is further reduced to 5V DC using voltage regulator IC.

4.2.2 Microcontroller ATMEGA328

The Atmel AVR core combines a rich instruction set with 32 general purpose working registers. All the 32 registers are directly connected to the Arithmetic Logic Unit (ALU), allowing two independent registers to be accessed in one single instruction executed in one clock cycle. The resulting architecture is more code efficient while achieving throughputs up to ten times faster than conventional CISC microcontrollers. The Atmega168 provides

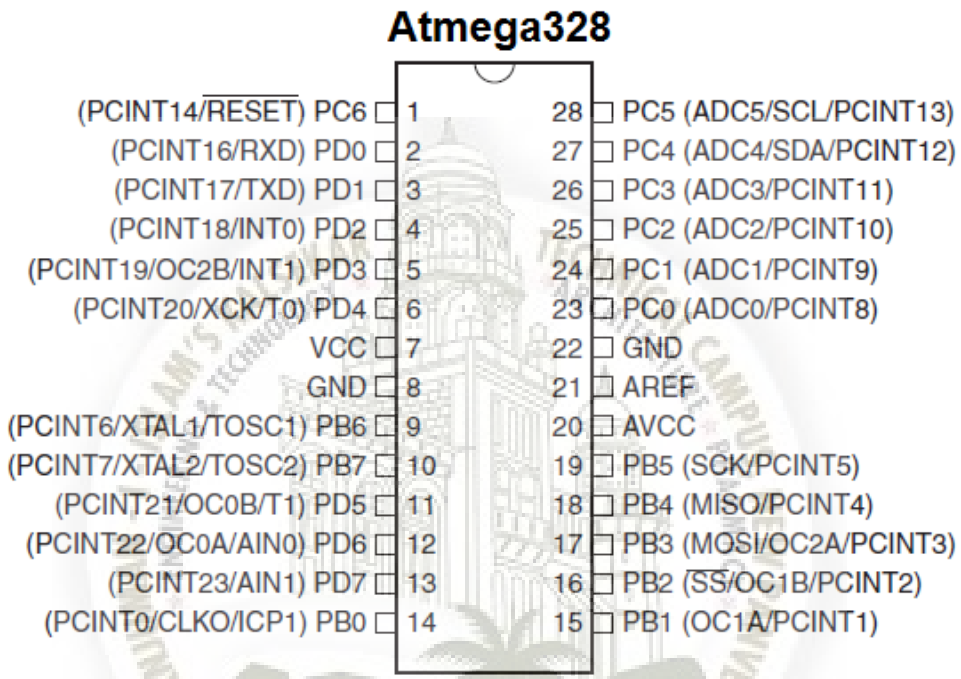

Figure 4.11: Atmega 328

the following features: 16 Kbytes of In-System Programmable Flash with Read-While-Write capabilities, 512 bytes of EEPROM, 1 Kbyte of SRAM, 23 general purpose I/O lines, 32 general purpose working registers, three flexible Timer/Counters with compare modes, internal and external interrupts, a serial programmable USART, a byte oriented Two wire Serial Interface, a 6-channel ADC (eight channels in TQFP and QFN/MLF packages) with 10-bit accuracy, a programmable Watchdog Timer with Internal Oscillator, an SPI serial port, and five software selectable power saving modes. The Idle mode stops the CPU while allowing the SRAM; Timer/Counters, SPI port, and interrupt system to continue function. The Power down mode saves the register contents but freezes the Oscillator, disabling all other chip functions until the next Interrupt or Hardware Reset. In Power-save mode, the asynchronous timer continues to run, allowing the user to maintain a timer

base while the rest of the device is sleeping. The ADC Noise Reduction mode stops the CPU and all I/O modules except asynchronous timer and ADC, to minimize switching noise during ADC conversions. In Standby mode, the crystal/resonator Oscillator is running while the rest of the device is sleeping. This allows very fast start-up combined with low-power consumption.

4.2.3 GSM Module

A GSM modem is a specialized type of modem which accepts a SIM card, and operates over a subscription to a mobile operator, just like a mobile phone. From the mobile operator perspective, a GSM modem looks just like a mobile phone.When a GSM modem is connected to a computer, this allows the computer to use the GSM modem to communicate over the mobile network. While these GSM modems are most frequently used to provide mobile internet connectivity, many of them can also be used for sending and receiving SMS and MMS messages. GSM modem can be a dedicated modem device with

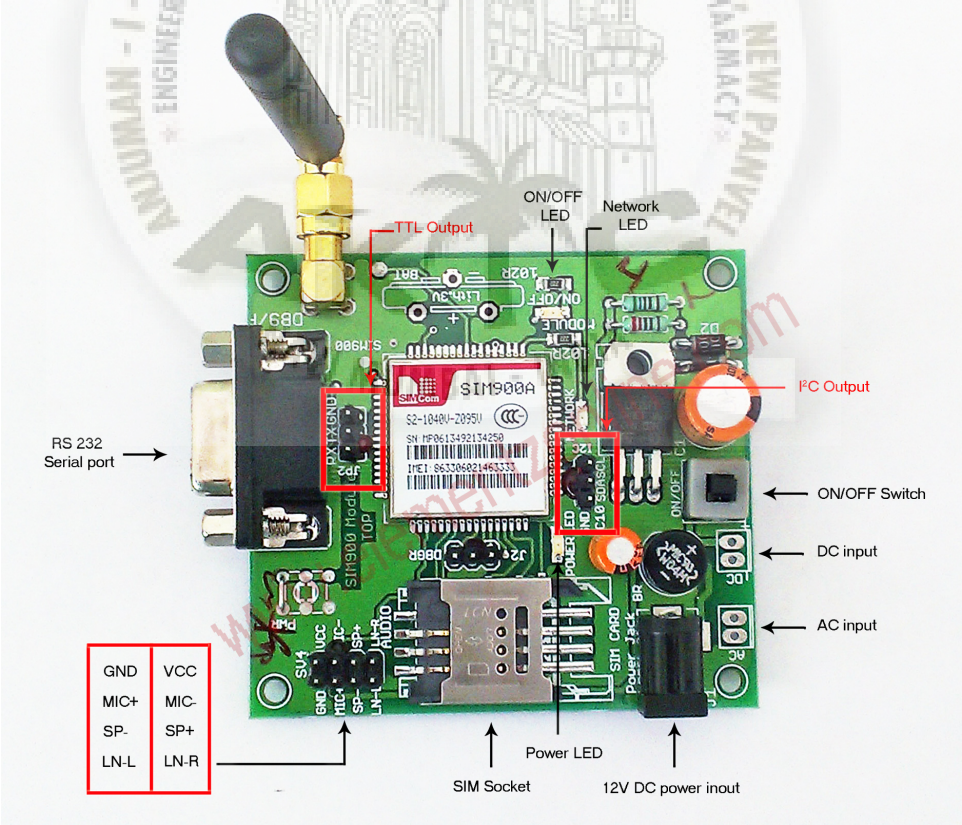

Figure 4.12: GSM

a serial, USB or Bluetooth connection, or it can be a mobile phone that provides GSM modem capabilities. For the purpose of this document, the term GSM modem is used as a generic term to refer to any modem that supports one or more of the protocols in the GSM evolutionary family, including the 2.5G technologies GPRS and EDGE, as well as the 3G technologies WCDMA, UMTS, HSDPA and HSUPA.

4.2.4 GPS Module

A GPS navigation device is a device that accurately calculates geographical location by receiving information from GPS satellites. Initially it was used by the United States military, but now most receivers are in automobiles and smartphones. The Global Positioning System (GPS) is a satellite-based navigation system made up of a network of a minimum of 24, but currently 30, satellites placed into orbit by the U.S. Department of Defense. Military action was the original intent for GPS, but in the 1980s, the U.S. government decided to allow the GPS program to be used by civilians. The satellite data is free and works anywhere in the world. GPS devices may have capabilities such as:

1. maps, including streets maps, displayed in human readable format via text or in a graphical format,
2. turn-by-turn navigation directions to a human in charge of a vehicle or vessel via text or speech,
3. directions fed directly to an autonomous vehicle such as a robotic probe.
4. traffic congestion maps (depicting either historical or real time data) and suggested alternative directions.
5. information on nearby amenities such as restaurants, fueling stations, and tourist attractions.

4.2.5 MAX 232

The MAX232 is an IC, first created in 1987 by Maxim Integrated Products, that converts signals from an RS-232 serial port to signals suitable for use in TTL compatible digital logic circuits. The MAX232 is a dual driver/receiver and typically converts the RX,

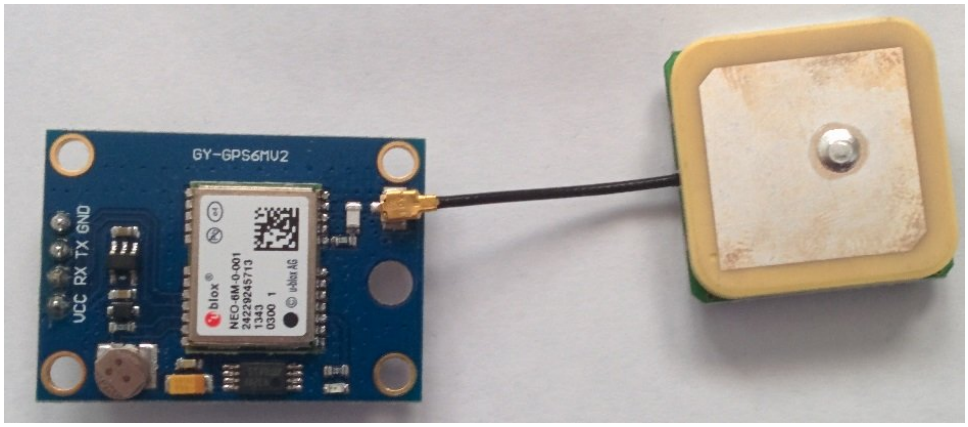

Figure 4.13: GPS

TX, CTS and RTS signals. The drivers provide RS-232 voltage level outputs (approx. 7.5 V) from a single + 5 V supply via on-chip charge pumps and external capacitors. This makes it useful for implementing RS-232 in devices that otherwise do not need any voltages outside the 0 V to + 5 V range, as power supply design does not need to be made more complicated just for driving the RS-232 in this case. The receivers reduce RS-232 inputs (which may be as high as 25 V), to standard 5 V TTL levels. These receivers have a typical threshold of 1.3 V, and a typical hysteresis of 0.5 V.

4.2.6 LCD

A liquid-crystal display (LCD) is a flat panel display, electronic visual display, or video display that uses the light modulating properties of liquid crystals. Liquid crystals do not emit light directly. LCDs are available to display arbitrary images (as in a general-purpose computer display) or fixed images which can be displayed or hidden, such as preset words, digits, and 7-segment displays as in a digital clock. They use the same basic technology, except that arbitrary images are made up of a large number of small pixels, while other displays have larger elements. LCDs are used in a wide range of applications including computer monitors, televisions, instrument panels, aircraft cockpit displays, and signage. They are common in consumer devices such as DVD players, gaming devices, clocks, watches, calculators, and telephones, and have replaced cathode ray tube (CRT) displays in most applications.The LCD screen is more energy efficient and can be disposed of more safely than a CRT. Its low electrical power consumption enables it to be used in

battery-powered electronic equipment.

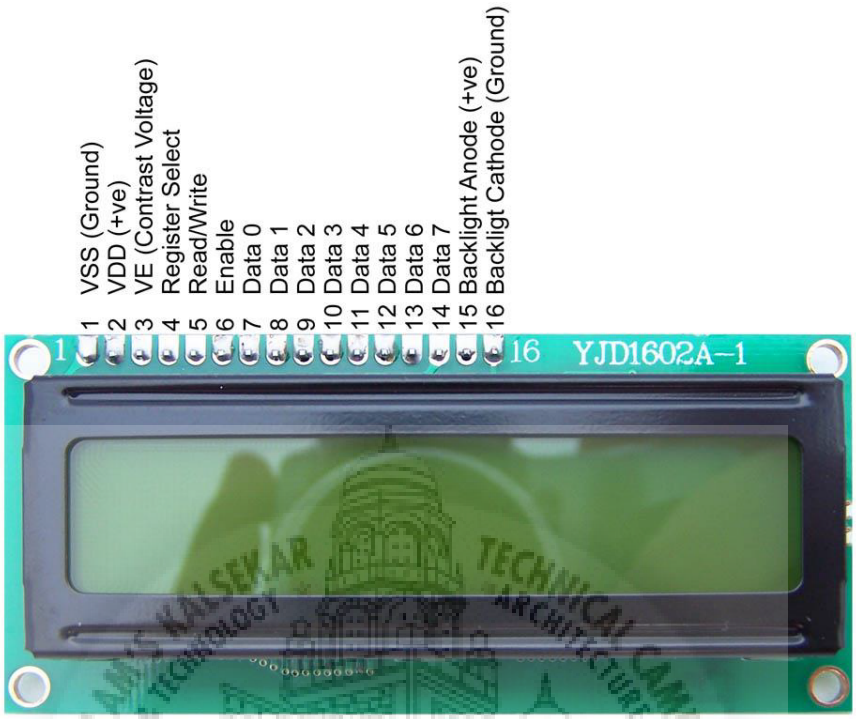

Figure 4.14: LCD

4.3 PCB construction

PCB Layout No device can work if its connections are not according to specification, and if the proper resistance, capacitance, inductance etc. are not connected to the place where required. Thus a PCB designer has to first think of the very possible combination of voltages that are required by the circuit and make them available at points where they are needed with the minimum use of jumpers and keeping the circuit size compact and yet effective. The layout of PCB has to incorporate all the information on the board before one can go on the artwork preparation. This means that a concept, which clearly defines all the details of the circuitry and partly of final equipment, is a prerequisite before the actual layout can start.

For PCB layout, the following points ought to be considered carefully:

1. Record size of components used.
2. Overall area covered is normally kept rectangular or square.
3. Vcc and ground lines should be provided at the sides to facilitate external connection.
4. Input and output terminals may be placed giving through to external connection.
5. Make a rough sketch placing components and interconnect components with jumpers.
6. Do not place components pointing in differed direction unless needed. Make them parallel to the either side of the board.
7. Make the neat final scaled sketch on the inch graph sheet.
8. Lines mounted are of uniform width.
9. Invest the layout to confirm that all the components are connected properly and given sufficient place in the layout.

Chapter 5

Advantage

Commercial fleet operators are by far the largest users of vehicle tracking systems. These systems are used for operational functions such as routing, security, dispatch and collecting on-board information. These are also used for fire detector in large vehicles like train, bus etc. because the vehicle like train contains large number of people and the sending alert of fire accident can save many lives. The applications for this project are in military, navigation, automobiles, aircrafts, fleet management, remote monitoring, remote control, security systems, tele services, etc.

1. Fleet monitoring.
2. Vehicle scheduling.
3. Route monitoring.
4. Driver monitoring.
5. Accident analysis.
6. Geo-fencing geo-coding.

These are just a few advantages of the project that has been introduced in this report . We can interface more number of sensors in order to serve multiple purposes. The micro-controller that has been used in this project have inbuit ADCs and hence the controller is capable of accepting analog inputs, which is the biggest advantage.

Chapter 6

Applications

The project that has been introduced here can be used for variety of applicatons -

1. Car navigation
2. Fleet management/tracking
3. Palmtop, Laptop, PDA, and Handheld
4. Location Based Services enabled devices

Chapter 7

Future Work

1. We can use the EEPROM to store the previous Navigating positions up to 256 locations and we can navigate up to N number of locations by increasing its memory.
2. We can reduce the size of the kit by using GPS+GSM on the same module.
3. We can increase the accuracy up to 3m by increasing the cost of the GPS receivers.
4. We can use our kit for detection of bomb by connecting to the bomb detector.
5. With the help of high sensitivity vibration sensors we can detect the accident. whenever vehicle unexpectedly had an accident on the road with help of vibration sensor we can detect the accident and we can send the location to the owner, hospital and police.
6. We can use our kit to assist the traffic. By keeping the kits in the entire vehicles and byknowing the locations of all the vehicles.
7. If anybody steals our car we can easily find our car around the globe. By keeping vehicle positioning vehicle on the vehicle.

Chapter 8

Result Analysis

We a team of 4 members have successfully completed our project on Tracking Down Vehicle & Locking it remotely using GPS & GSM technologies.

We first tried to understand the working of our project through the schematic & then we proceeded to build the circuit as per the schematic. Initially we faced few problems with GPS modem, as it won't work efficiently inside buildings. And also the GSM modem suffered problems with coverage area of Mobile Service Provider. So, we used Airtel as it has maximum coverage area. In order to solve this problem we can use dedicated servers and purchasing satellite space so that we can track down the vehicle anytime and anywhere.

The overall developed circuit looks as in the following figure:

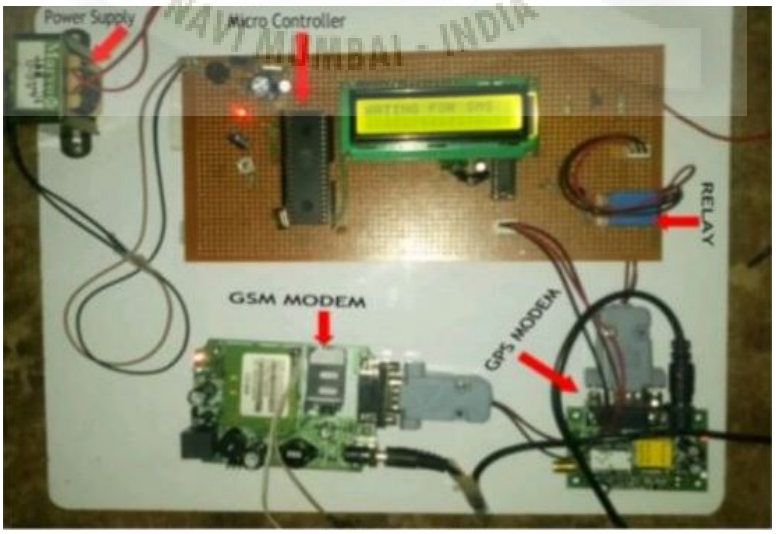

Figure 8.1: Picture of VTS kit

The above circuit works mainly by receiving messages from a mobile phone. There are three messages/commands by which we can track and control the vehicle. They are:

i) TRACK

ii) LOCKD

iii) NLOCK

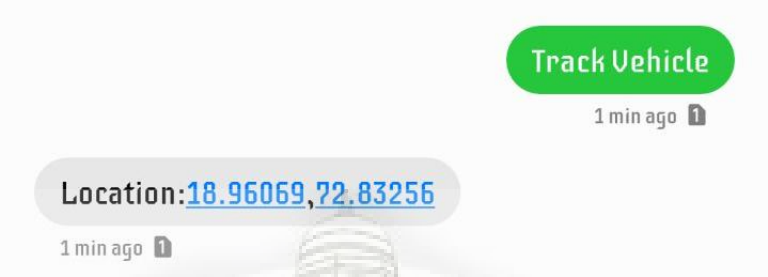

Figure 8.2: Picture of vehicle located

Chapter 9

Conclusion

1. A real-time automobile tracking system via Google Earth is presented
2. The system included two main components: a transmitting embedded module to interface in-vehicle GPS and GSM devices in order determine and send automobile location and status information via SMS.
3. The second stationary module is a receiving module to collect and process the transmitted informaton to a compatible format with Google Earth to remotely monitor the automobile location and status online.
4. The transmitted location of the vehicle has been accurately tracking. The accuracy of estimated vehicle coordinates has been enhanced.

Chapter 10

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Chapter 11

Photo Gallery


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ENGINEERING & TECHNOLOGY
ARCHITECTURE
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