

AUTOMATED VEHICLE SPEED CONTROL SYSTEM

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This Report Presented in Partial Fulfillment of the Requirements for the Degree of Bachelor of Science in Computer Science and Engineering

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APPROVAL

This Project titled “**Automated Vehicle Speed Control System**”, submitted by Mohammad Rahat Kabir ID No: 143-15-4226, Md. Amir Azam Moon ID No: 143-15-4379, Abdul Hannan ID No: 143-15-4631, Nusrat Jahan Haque ID No: 143-15-4586 to the Department of Computer Science and Engineering, Daffodil International University has been accepted as satisfactory for the partial fulfillment of the requirements for the degree of B.Sc. in Computer Science and Engineering and approved as to its style and contents. The presentation has been held on 26th December 2018.

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DECLARATION

We hereby declare that, this project has been done by us under the supervision of **Mr. Seraj Al Mahmud Mostafa, Senior Lecturer, Department of CSE** Daffodil International University. We also declare that neither this project nor any part of this project has been submitted elsewhere for award of any degree or diploma.

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ABSTRACT

The main purpose of the “**Automated Vehicles Speed Control System**” is to make a better solution to reduce traffic jam and road accident. Every year, we find more and more road accidents due to increased traffic on the roads. Nowadays people are driving very fast accidents are occurring frequently, we lost our valuable life by making small mistake while driving. Driver are not to follow the traffic rule, road speed limit they want to drive fast and want to overtake other. By using this system we can effectively controls the speed of the vehicle in different zones. Our system automatically detect the road speed limit and then lock the vehicles speed that are same as road speed limit so that driver are not to increase the speed. To develop this system we use Arduino Board Mega (2850), HC-0 Bluetooth Module, L298 Motor Driver, IR Sensor, SIM800L, Gear Motors, Arduino Board Nano. After implementation of all functions, the system is tested in different stages and it works successfully as a prototype.

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CHAPTER 1

1.1: Introduction

In this project we want to show how to control the speed of any car up to the road speed limit. Once the vehicle detect the road speed limit driver can't increase the speed. This speed limit is provided by IR sender. If driver tries to violate the speed limit and try to speed up automatically message send to the authority. Every year, we tend to discover a lot of road accidents due to increased traffic on the roads. Nowadays driver driving to quick and don't maintain the traffic rule therefore accidents are occurring usually. We lost our most important valuable life by creating tiny mistake whereas driving (school zone, hills area, and highways. So this system will be used to avoid such kind of accidents and to alert the drivers and to control their vehicle speed. The project consists of 2 units: zone transmitter unit and receiver unit. Once the data is received from the zones, the vehicle's embedded unit smart way to reduce the speed in line with the zone.

1.2: Background

The "Automated Vehicle Speed Control System" project provide smart way to decrease road accident by controlling the speed, this system control vehicle acceleration when vehicle reach the limit. All kind of road speed limit data will be send to the system which is installed in vehicle. Easy to find out criminal who want to escape. We are find out smart solution for all kind of vehicle such as car, bus, motorcycle and more.

1.3: Overview

Vehicle Speed Control Mechanization Framework is intense, adaptable and extremely simple to utilize. It is planned and created to reduce traffic jam, road accident and crime to make our life comfortable. In the event that we check out us we will find that innovation is making its place all over. From morning to night, we are utilizing such a significant number of innovations, in short it is a piece of our life now and it is extremely difficult to live without it too. Vehicle Speed Control Mechanization is winding up increasingly prevalent step by step because of its various favorable circumstances and that is the reason we picked this plan to make it more reliable and we try to much more accessible in our nation as well. We endeavored to control this speed with IR, IR is available, cheaper rate and very small also it is the fastest way to send data. For example,

noise free hospital and school area, automated bus gate lock system and etc. Our last objective with this item is to bring our nation one stage ahead in innovation and nation fulfillment.

1.4: Speed automation

A speed automatic system could be a complicated mixtures of varied parts which will be outlined as systems wherever perception, deciding, and operation of the vehicle are performed by electronics and machinery instead of somebody's driver, and as introduction of automation into road traffic.

1.5 Project Goal

The goal of this undertaking project is to develop a system that can be control vehicle speed automatically. It detects vehicle speed and control speed by the road speed limit.

1.6 Project Objectives

- To design a System which will detect vehicle speed and control its speed accordingly to follow the road speed limitation.
- If traffic signal is red vehicles are stop automatic and if the signal is green the driver can drive.

1.7 Project Scope and Limitation

- We can modify the system with the help of GPS to identify the zones.
- We can additionally modify the system with economical braking system in association with air Flow management to the carburetor.
- This system can be more effectively used for any kind of automobiles such as buses, cars, bikes etc.

CHAPTER 2

ANALYSIS OF THE SYSTEM

2.1 System Definition

This system consists of three components and is controlled by an IR sensor with Arduino and SIM800L. In this Arduino-based Project we can control any vehicle speed via Arduino with an IR sensor and call-based alert system if a driver violates the rules and provide a good traffic control system. We want to make an automated vehicle speed control system with this technology to reduce cost and human effort.

2.2 Proposed System Features

This automated vehicle speed control system will be able to have the following features for the good traffic system.

1. Speed Control: These systems can be programmed for vehicle speed control. We can do this in two ways.

Automatically: This means that speed can be automatically controlled by an IR sensor when the vehicle detects an IR value the speed can be changed automatically.

Manually: This means the traffic authority can change the IR value manually.

2. Call alert and Security system:

The main objective of this part of our project is to send an alert message or call to the authority if the driver wants to violate the rules and try to speed up to three times.

2.3 System Requirement

1. Arduino Board Mega (2850)
2. HC-0 Bluetooth Module.
3. L298 Motor Driver.
4. IR Sensor.
5. SIM800L.
6. Gear Motors.
7. Arduino Board Nano.

CHAPTER 3

FEASIBILITY STUDY

3.1 Introduction

Feasibility analysis (FA, additionally known as feasibility study) is used to judge the qualities and shortcomings of a projected task and here headings of exercises which can enhance a venture and achieve wished.

3.2 Feasibility Study

Feasibility Study a practicability study was carried toward the beginning of this venture and also the incidental could be a concise investigation of it below 5 interconnected composes:

i) Technical: From a technical purpose of read, resources needed for the event of this project were already accessible from the university which has integrated development environment (IDE), IR transmitter and receiver, SIM800L, Bluetooth module (HG-06), Arduino and an android application to pass charges for controlling this framework. Absence of related knowledge and learning of the improvement stage utilized would have been a confinement yet our past involvement in comparative programming dialects we utilize the Arduino stage for the advancement of this venture.

ii) Economical: The maximum available budget for this project was 4000 BDT (Four thousand taka only), which was more than sufficient as the cost that would be Arduino UNO, Arduino Nano, Bluetooth module HC-06, GSM Cheap, IR sensor and other electronics equipment. For information only the approximate market value of those equipment is less than 2000 BDT. The control software was already built and can be found in the Google play store at no cost (Free).

iii) Schedule: To manage the work flow of the project efficiently and certainly Milestones were set at the start of the project with predefined timescales for the planning, development, testing and documentation of all the stages concerned throughout the life cycle of this project.

iv) Operational: Analysis of the operational practicability of this project was a key think about deciding the methodologies utilized in style, development and preparation of this

project for it to figure in a given surroundings. Once the preliminary analysis, varied proactive measures were devised just in case bound components within the project.

v) Legal: The legal aspects of this project are terribly restricted as this can be an educational project of 1 year solely however nevertheless it's been taken into consideration that in the course of this project any personal and confidential information a few person or organization won't be hold on or utilized in an inappropriate manner. The university's codes of follow for the use of human volunteers, risk and ethics are strictly followed. Any material derived or quoted from the written or unpublished work of different persons has been duly acknowledged.

CHAPTER 4

METHODOLOGY

In planning an automated Vehicle Speed control system, one or a lot of appropriate platforms are utilized in order to make a reliable and flexible system which will be simply operated and adapted for a smart way to control new system. In this way, with the end goal of this undertaking project some particular think decisions were made on the kind of stages, equipment segments and method of activity of the speed computerization framework.

4.1 Preliminary Considerations

Before the genuine plan of the task work, particular consider decisions in choice of proper usage stages and equipment segments were made. Need was given to minimal effort accessibility, unwavering quality, adaptability and straightforwardness in every one of these choices.

4.1.1 Selection of Implementation Platform

Selection of Implementation Platform There are several platforms over that a automated Vehicle Speed control system is enforced. Of the presently accessible platforms: Arduino, ATmega328p microcontroller, Android Device, IR sensor, GSM , microcontroller ATmega2560; Bluetooth Module and Microcontroller were found most appropriate due to their low price accessibility, reliableness and ease once used for a personal automated Vehicle Speed control system during which my project work is on.

4.1.2 Selection of Hardware Components

Each platform has a set of hardware components over which it is implemented. For **ATmega328p** microcontroller, For Bluetooth, there are many more Bluetooth module, but **Bluetooth module HC-06** was chosen due to its low cost availability, it can be a category 2 slave Bluetooth module designed for clear wireless serial communication. Once it's paired to a master Bluetooth device like laptop computer, smart phones and pill, its operation becomes clear to the user. Finally, for **Microcontroller**, the popular ones area unit those created by Microchip, ATMEL, Motorola and TX Instruments, of of these chip manufactured Arduino microcontroller was found best suited due to its low cost

accessibility. For **IR sensor/Infrared** will used several platform, the paired unit contains associate RF receiver and IR transmitter. Once associate infrared remote is used on the IR receiver, the device interprets the signal and broadcasts it over RF. The paired unit then receives that signal, decodes it associated transmits associate IR signal. Associate IR transmitter contains associate crystal rectifier that emits infrared.

4.2 System Design

The designed automated vehicle Speed Control System uses Arduino microcontroller, HC-06 Bluetooth module, android Device between the microcontroller and Bluetooth module. As illustrated within the diagram shown in figure 4 .1, once the HC-06 receives the desired signal, it communicates to the Arduino, the Arduino control the motor via an application and this successively determines the state of the connected appliance, there totally controlled vehicle.

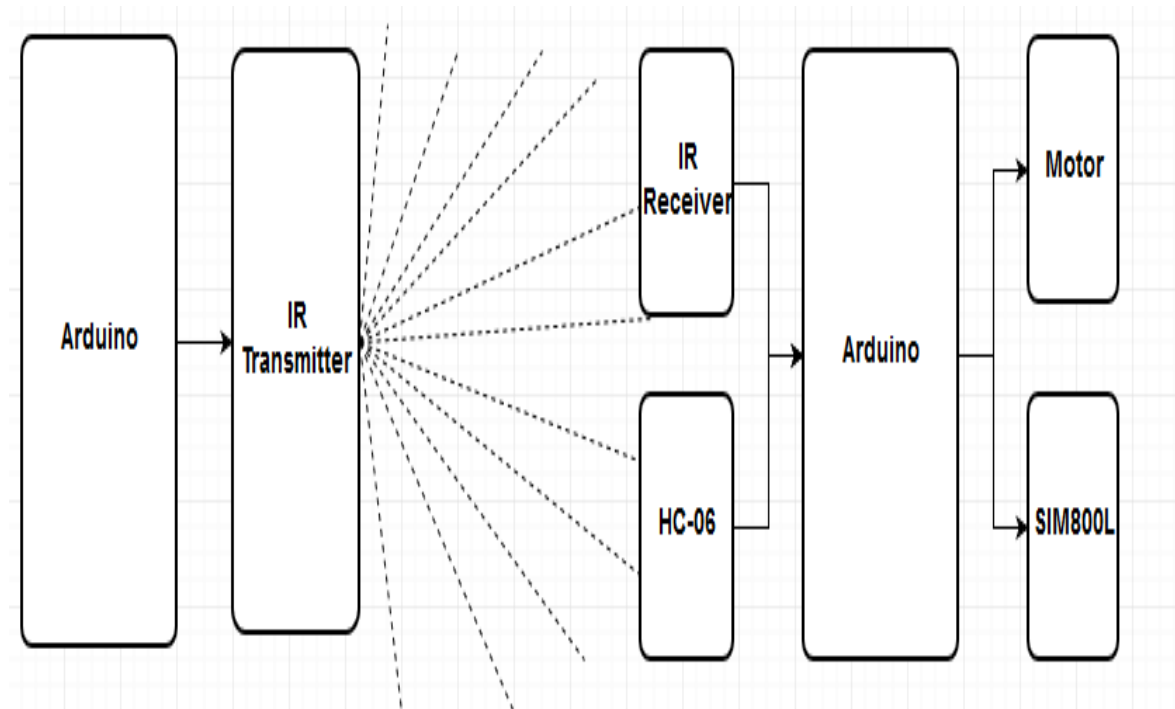


Figure 4.1: System Design of Automated Vehicle Speed Control System [7]

Driver doesn't follow the road speed limitation that's why can be happen road accident for driver competition. A driver race with their competitor most of the time they lost their control which is the main reason for road accident, when accident happen a drive quickly

away from the spot. This 4.2 figure shows a speed control system project based on Arduino Nano. The low cost project uses IR sensor which can be calibrated to detect speed control based on sender data and receiver data. If anyone try to violate the speed limit up to three time then a SMS generated and automatically send to the authority.

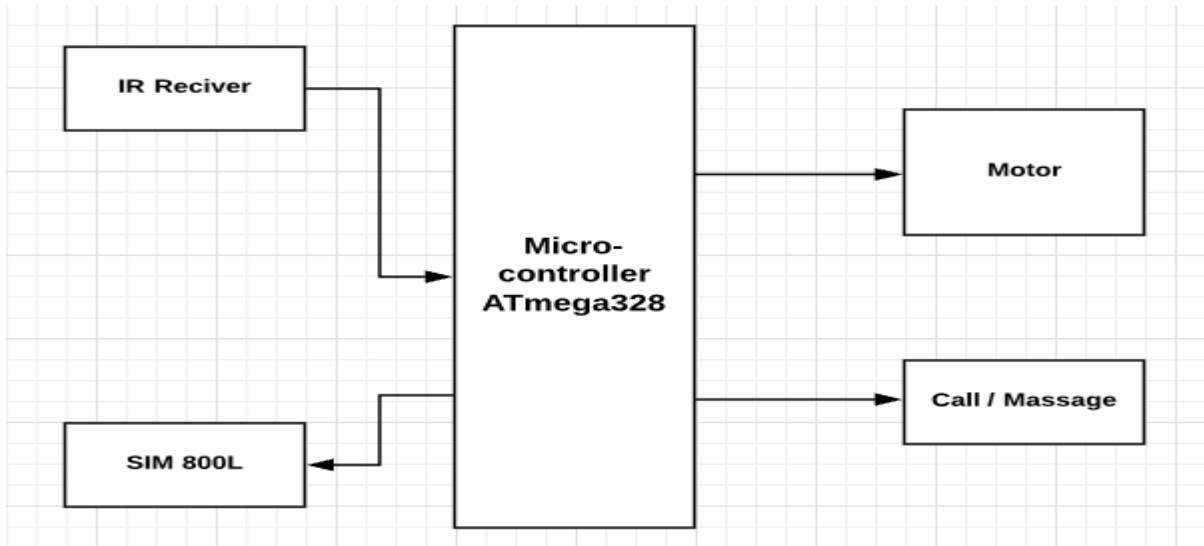


Figure 4.2: Design of Alert System [7]

4.3 What Is Arduino?

Arduino is an open-source prototyping stage in light-weight of simple to-use gear and programming. Arduino sheets is browse inputs - light-weight on a sensor, a finger on a catch, or a Twitter message - and change it into a yield - effective a motor, turning on a Drove, dispersing one thing on the net. We are able to direct your board by sending a plan of rules to the microcontroller on the board. We try and do all things thought-about we use the Arduino programming accent (in light weight of Wiring), and also the Arduino Programming (IDE), visible of getting ready. Arduino was conceived at the Ivrea Interaction Design Organization as a simple apparatus for quick prototyping, the Arduino board began changing to adjust to new needs. All Arduino sheets are all open-source, participating clients to manufacture them autonomously and within the finish modify them to their specific wants. The merchandise, as well, is open-source, and it's turning into through the commitments of clients overall. We used figure 4. 3 Arduino Uno devices to complete our project work. [3]



Figure 4.3: Arduino Nano Board [1]

Features of the Arduino UNO:

- SRAM: 2 KB (ATmega328)
- Flash Memory: 32 KB of which 0.5 KB used by boot loader
- Analog Input Pins: 6
- Digital I/O Pins: 14 (of which 6 provide PWM output)
- Input Voltage (limits); 6-20V
- Input Voltage (recommended); 7-12V
- Operating Voltage: 5V
- Microcontroller: ATmega328 [3]

4.4 Why Use ARDUINO

There are varied distinctive microcontrollers and microcontroller stages open in publicize for physical accomplishment. For example, Parallax Essential Stamp, web media's BX-24, Phi gets, MIT's Handy board, Beagle Board, and varied others provide equivalent convenience. These mechanical assemblies take the mussy functions of enthusiasm of microcontroller programming and wrap it up in a simple to- use package. Arduino in like manner streamlines the trail toward operating with microcontrollers, notwithstanding it offers some favored purpose of read for educators, understudies, experts. [3]

Cross-arrange - The Arduino drivers and programming continues running on Mac, Windows, and Linux working structures and they are thoroughly common license.

Clear board - Various microcontroller sheets are irrefutably enormously complex with a huge amount of included parts like LCDs, gets, LEDs, 7-segments, etc. showing all that it can do. Arduino has indisputably the base. Need more? Get shield. There are numerous Arduino shields, from LCD to Wi-Fi, yet it's up to the customer to incorporate that.

Direct programming condition - The Arduino programming condition is certainly not exhausting to-use for novices, yet adequately versatile for forefront customers to abuse likewise. There are libraries to do essential things, like twiddle pins or de-bounce gets and tremendous measures of question wrapped libraries to do complicated things, for example, staying connected with SD cards, LCD screens, parsing GPS. For teachers, it's favorably in perspective of the preparing programming condition, therefore understudies creating sense of a way to program in this condition will be comfortable with the design and feel of Arduino. Arduino could be a basic structure planned for artistic folks with just about nothing or "no prior learning of contraptions. Above all, it has a to a great degree welcoming disposition towards students and tries not to freeze them unnecessarily." [3]

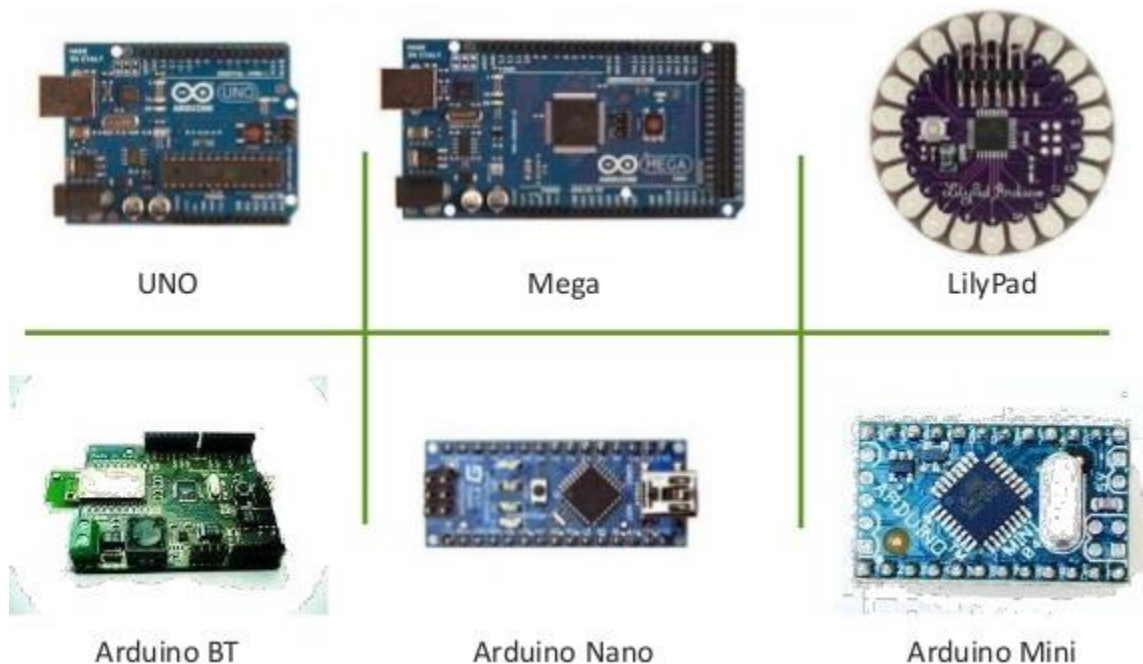


Figure 4.4: Type of Arduino [2]

Arduino Open source and broad hardware – The designs of the Arduino sheets are discharge below a resourceful Commons permit, therefore any circuit fashioners will influence their own rendition of the module, to analyze and enhancing it. Indeed, even typically unpracticed clients will assemble the bread board variant of the module keeping in mind the end goal to saw however it functions and spare price. Figure 4.4 shows distinctive types of Arduino component. [3]

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4.5 HC-06 Bluetooth Module

The Bluetooth module (Figure: 4.5) HC-06 is an MASTER/SLAVE module. By default the assembly line setting is SLAVE. The part of the module (Master or Slave) are often organized simply by COMMANDS. The slave modules cannot begin an association with another Bluetooth widget, yet will acknowledge connections. Master module will begin an association with different devices. The client will utilize it primarily for a serial port substitution to line up association amongst MCU and GPS, computer to our inserted venture, and then forth. [14]

Hardware Features:

- Passkey: 1234
- Power supply: 3.6V to 6V DC
- Default baud rate: 9600
- 2.4GHz ISM band frequency
- Bluetooth v2.0+EDR

Software Features:

- Searching network for connect device to control Vehicle.
- Automatically connect to the previous device on power as default.
- Permit pairing device to connect as default.
- Default auto pairing pin code is 1234.

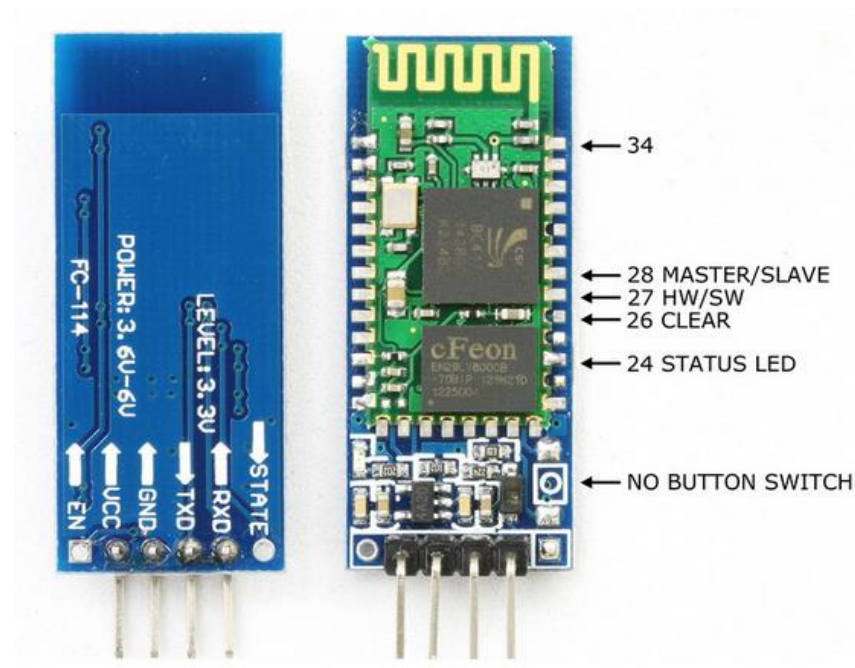


Figure 4.5: Bluetooth Module HC-06 [4]

This Bluetooth module HC-06 is used to create virtual connection between our apparatus and mobile phone. After a successful connection we can operate almost all devices with our mobile. [14]

4.6 ATmega328p Microcontroller

The superior semiconductor Pico Power 8-bit AVR RISC-based microcontroller combines 32KB ISP non-volatile storage with read-while-write capabilities, 1024B EEPROM, 2KB SRAM, twenty three general purpose I/O lines, thirty 2 general purpose operational registers, 3 versatile timer/counters with compare modes, internal and external interrupts, serial programmable USART, a byte-oriented 2-wire serial interface, SPI port, a 6-channel 10-bit A/D device (8-channels in TQFP and QFN/MLF packages), programmable watchdog timer with internal generator, and 5 computer code selectable power saving modes. The device operates between one .8-5.5 volts. By penalty powerful directions throughout a single clock cycle, the device achieves throughputs approaching one unit per rate, leveling power consumption and method speed. [15]



Figure 4.6: ATmega328p Microcontroller [5]

Features of ATmega328p:

- Green (Pb/Halide-free) Packaging Option
- Flexible ISP Programming (Byte and Page)
- Fast Programming Time
- Power-off Flag
- Dual Data Pointer
- Watchdog Timer
- Interrupts Recovery from Power-down Mode
- Low-power Idle and Power-down Modes
- Full Duplex UART Serial Channel
- Six Interrupt Source
- Two 16-bit Timer/Counter
- 32 Programmable I/O Lines
- 128 x 8-bit Internal RAM
- Three-level Program Memory Lock
- Fully Static Operation: 0 Hz to 33 MHz
- 1.8V to 5.5V Operating Range
- 4K Bytes of In-System Programmable (ISP- Endurance: 10,000 Write/Erase
- Compatible with MCS®-51 Products [15]

4.7: IR Transmitter and Receiver

The IR transmitter consists of the semiconductor diode that emits the IR (Infra-Red) radiation. This can be received by the pic diode that acts as IR receiver at the receiving end. Since the IR radiation is invisible to human eye it's wonderful for victimization in wireless communication. An electronic remote device primarily consists of this IR transmitter and receiver. A far flung management patterns a flash of invisible light-weight that's was an instruction and is received by the receiver module. Thus but it works?



Figure 4.7: Transmitter and IR Sender [10] [11]

The IR signal is modulated throughout transmission. Modulation suggests that assignment pattern to the data to be sent to the receiver. The foremost usually used IR modulation is concerning 38 kHz.

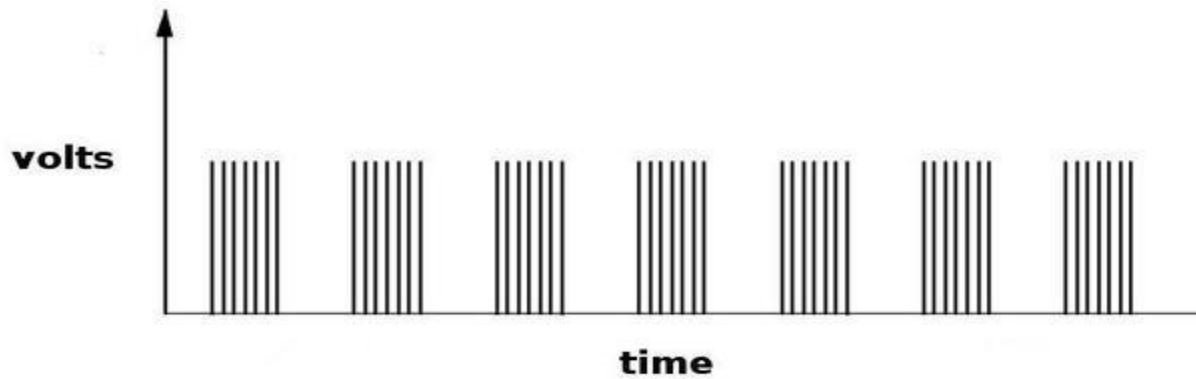


Figure 4.7.1: IR Transmission Signal [12]

When you hit a key on your remote, the sending IR light-emitting diode will blink very quickly for a fraction of a second, sending encoded information to your appliance. On the receiver side the modulated signal is demodulated and conjointly the pattern is obtained as [12]

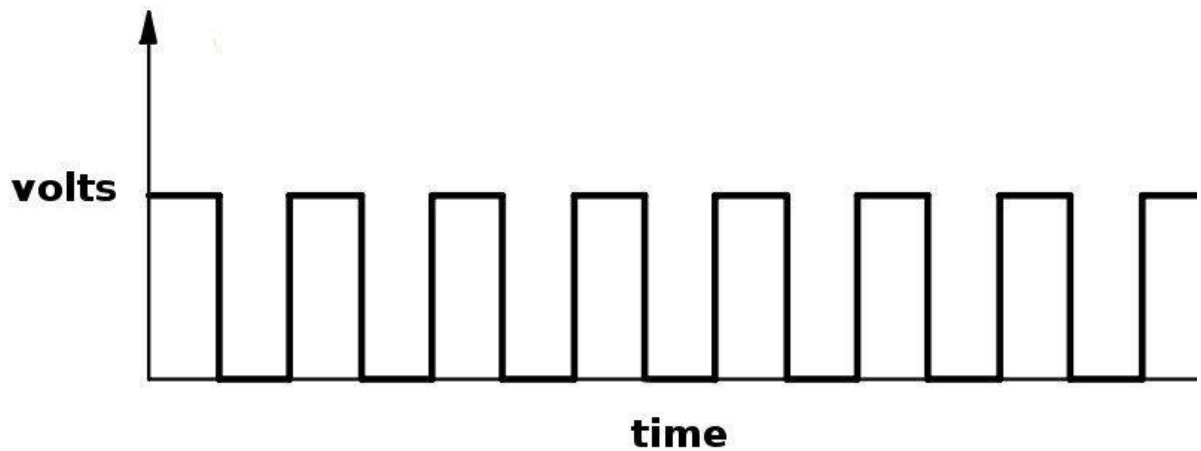


Figure 4.7.2: IR Receiver Signal [12]

4.8: SIM800L GSM Module

SIM800L is sweet and cheap GSM jailbreak board. We are going to set it up with Arduino and send straightforward text messages. The library will of course be accustomed do a lot of things like calls etc., we are going to specialize in setting the

module the proper means as a result of you will have to require care of a number of things like power and reset.

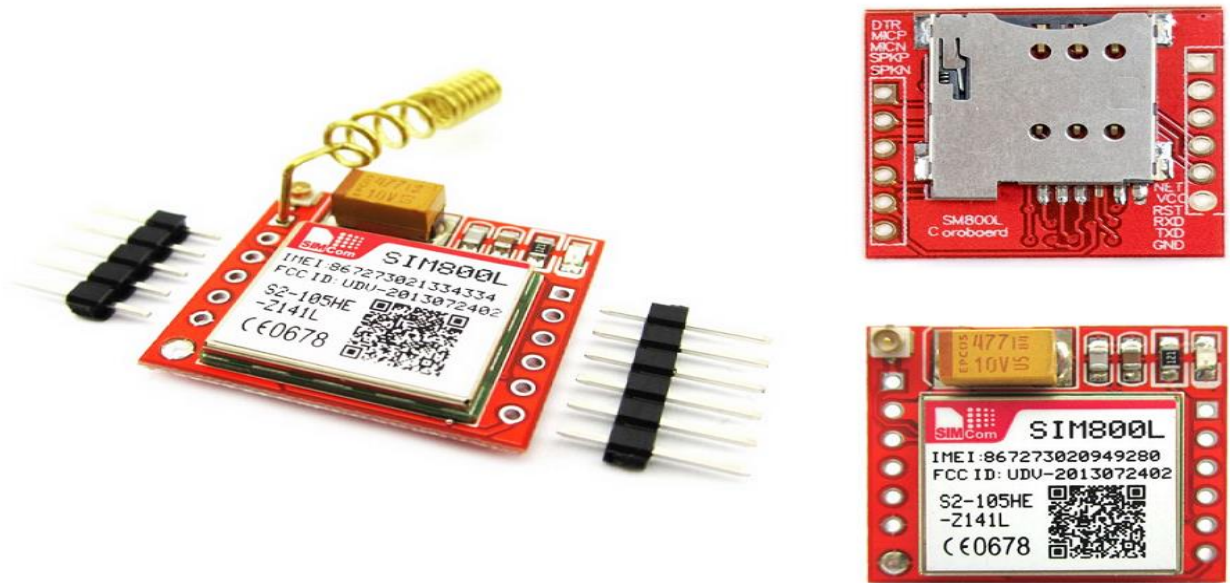


Figure 4.8: GSM Module [6]

Features of SIM800L

- Accepts AT Commands
- Hear FM radio broadcasts
- Connect with the web via GPRS
- Receiver and send SMS
- Receive and create calls mistreatment the speaker and electro-acoustic transducer outputs
- 2G quad-band@850/900/1800/1900Mc [16]

4.9: Motor Driver

The L298N Motor Driver Module can be a high voltage twin H-Bridge factory made by ST Company. It's designed to only settle for commonplace TTL voltage levels. H-bridge drivers are accustomed drive inductive tons of that desires forward and reverse perform with speed management like DC Motors, and Stepper Motors.[17]

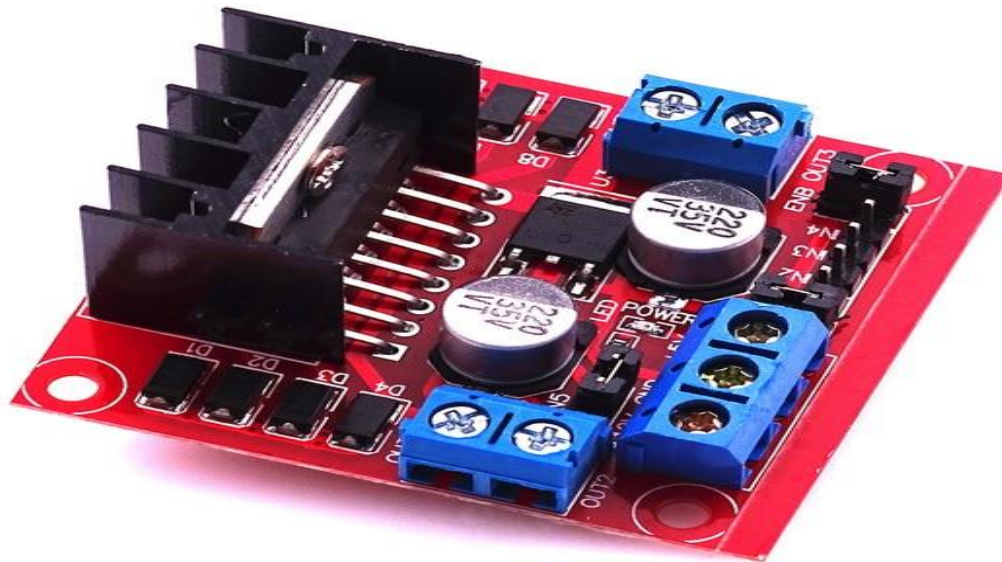


Figure 4.9: L298N Motor Driver [13]

Features of L298N Motor Driver

- Driver Board Weight: 33g
- Driver Board Size: 55mm * 49mm * 33mm (with fastened copper pillar and also the conductor height)
- Max power consumption: 20W (when the temperature $T=75^{\circ}\text{C}$)
- Peak current: 2A
- Operative Voltage: Seven to 35V
- Driver: L298 twin H Bridge DC Motor Driver IC [17]

4.10: Arduino IDE

For this circumstance we can use particular IDE like Microsoft's visual studio anyway we picked this since this IDE is impressively more organized with Arduino than visual studio. Arduino IDE is also extraordinarily straightforward and easy to use. In the going with 4.10 we showed a screen catch from Arduino IDE.

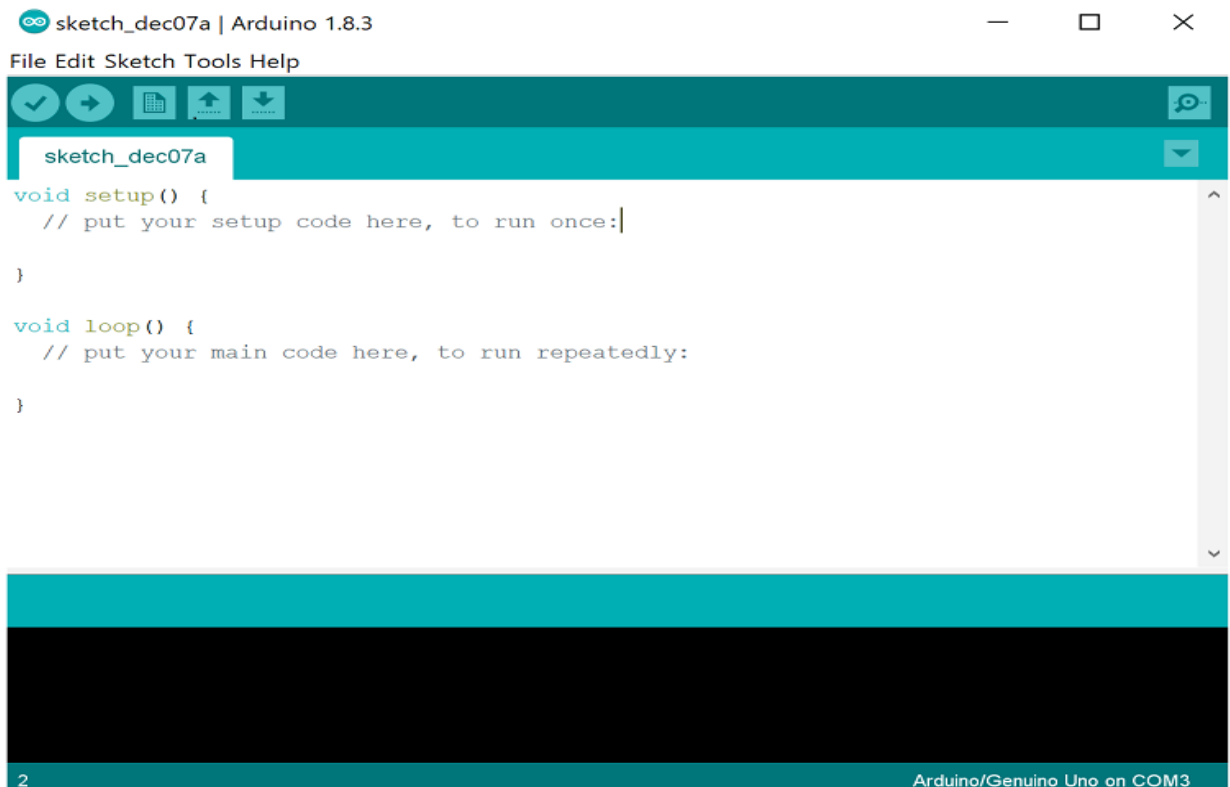


Figure 4.10: Demonstrates a Screen Capture of Arduino IDE. [8]

CHAPTER 5

Design and Implementation

5.1 Introduction

The plan of this project enclosed coupling some equipment segments and testing at the distinctive phases of the usage. Firstly, a flow chart as shown in figure 5.1 was develop for the design indicating the processes concerned.

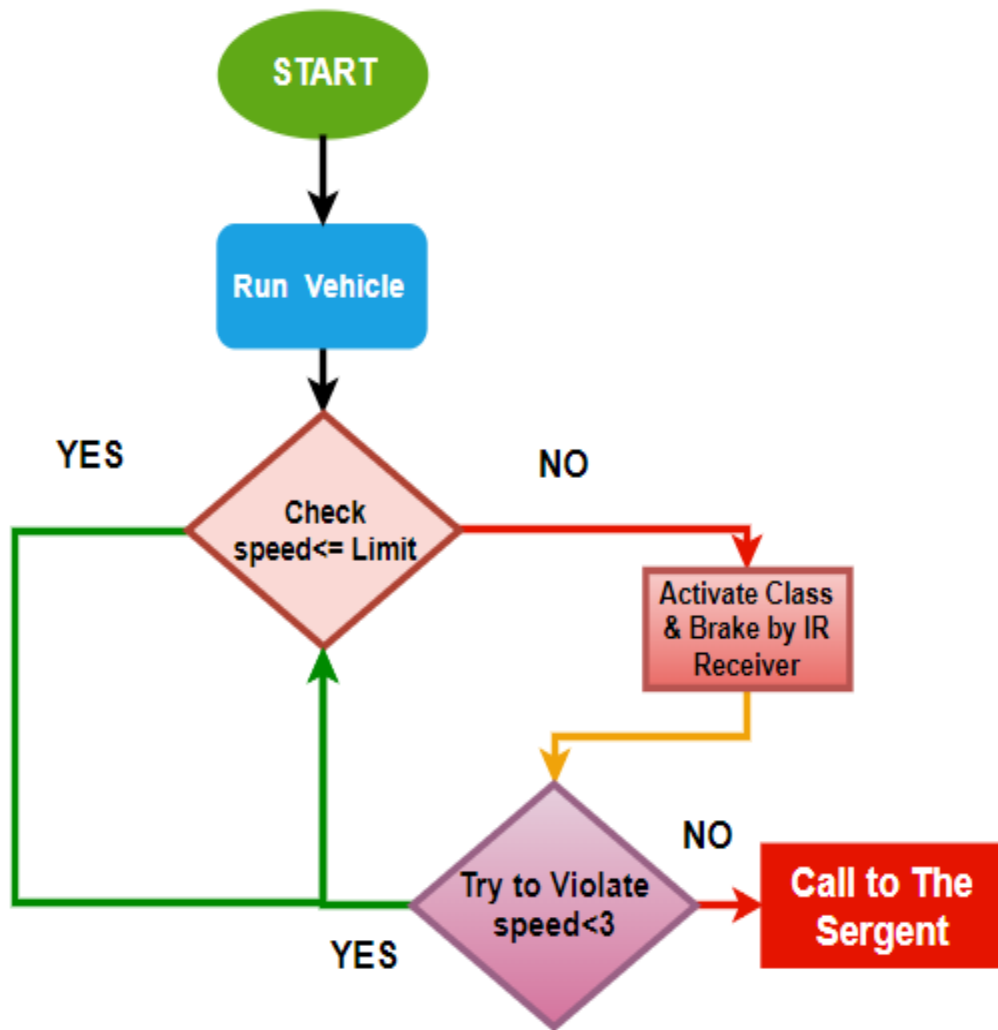


Figure 5.1 Flowchart of Vehicle Speed Control System [7]

Figure 5.1, Shows the working procedure of automated Vehicle Speed control system. Shortly describe about that flow chart.

- First install Bluetooth Electronic software from play store, which is free.
- Second, connect HC-05 to Android device.
- Then we run the car with high speed
- Then send some data with IR transmitter which is inform the system

5.2 Layout

The following figure 5.2 shows the Bluetooth wiring layout of the system.

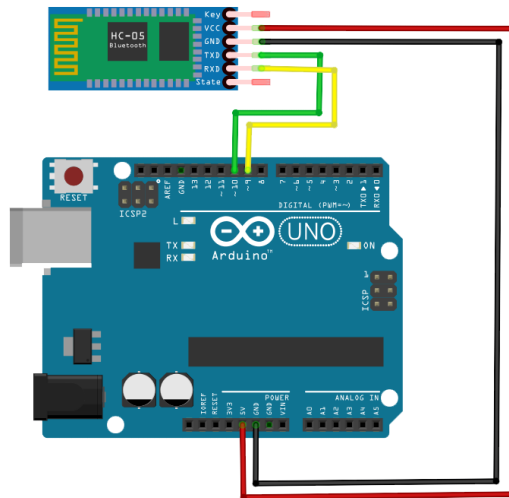


Figure 5.2: Connection procedure of Arduino with Bluetooth module [9]

5.3 SMS Alert System

This system can be represent driver mentality control by SMS alert system, when driver try up to three times increase the speed this system generate automatically SMS then send to the authority.

CHAPTER 6

CONCLUSION AND RECOMMENDATION

The system designed during this project will reduce rash driving and accidents up to somewhat and so will save several lives and many valuable properties. Rash driving within cities, inside the regions of college zones, villages that area unit almost the high ways in which and beside the high ways in which is prevented using this technique. This technique is value effective, because it use sensors and electronic parts, however instead uses simple system.

6.1 Limitations

- There's an opportunity of disconnecting the battery with the system once driver desires. So to reduce this there's demand of frequent checking's of the entire system by some external government staff.
- Just in case of C.I. engine the system is going to be very little difficult that is tough to manufacture.
- The system can begin operating only there's application of brake different wise it will not begin operating.

6.2 Feature Work

- We can modify the system with the assistance of GPS to identify the zones.
- We will modify the system with economical braking system in association with air flow management to the carburetor.

6.3 References

- [1] Arduino, available at <<https://www.arduino.cc/en/Guide/Introduction/>> last accessed on 19-11-2018 at 11.00 am
- [2] Types of Arduino <<http://www.instructables.com/id/Intro-to-Arduino/>> last accessed on 19-11-2018 at 11.30 am
- [3] Arduino features and the reason to use Arduino for this kind of project,
Available at <<https://www.arduino.cc/en/Guide/Introduction/>> last accessed on 18-11-2018 at 10.30 am
- [4] HC-06 module at <<http://www.carobot.cc/bluetooth/1258-hc-06-wireless-bluetooth-module/>> last accessed on 18-11-2018 at 09.00 am
- [5] ATmega328 microcontroller at <<https://www.microchip.com/wwwproducts/en/ATmega328/>> last accessed on 15-11-2018 at 11.00 am
- [6] Gsm module at <<https://layadcircuits.com/product/sim800l-gsm-module/>> last accessed on 10-11-2018 at 08.30 am
- [7] Flowchart Creation Tools at <<https://www.draw.io/>> last accessed on 16-11-2018 at 10.50 am
- [8] Arduino IDE at <<https://www.arduino.cc/en/Main/Software/>> last accessed on 18-11-2018 at 09.30 am
- [9] Online circuit maker at <<https://www.tinkercad.com/>> last accessed on 18-11-2018 at 10.30 pm
- [10] IR receiver at <<https://www.sparkfun.com/products/10266/>> last accessed on 03-09-2018 at 11.30pm
- [11] IR transmitter at <<http://rcduniya.com/product/robu-ir-transmitter-and-reciever-replacement-led-for-lsa08-line-following-sensor-bar/>> last accessed on 03-09-2018 at 11.35pm
- [12] IR receiver and transmitter signal at <<https://learn.sparkfun.com/tutorials/ir-communication/all/>> last accessed on 03-09-2018 at 11.47pm
- [13] L298N Motor driver at <<https://www.dhresource.com/0x0s/f2-albu-g6-M00-D6-47-rBVaSFtRfqeAMYhUAAW89fCj1eI215.jpg/1pcs-l298n-motor-driver-board-module-l298.jpg>> last accessed on 03-09-2018 at 11.52pm
- [14] HC-06 Bluetooth module at <https://www.sgbotic.com/index.php?dispatch=products.view&product_id=2471> last accessed on 04-09-2018 at 12.52am
- [15] ATmega328p Microcontroller at <<https://www.microchip.com/wwwproducts/en/ATmega328p>> last accessed on 04-09-2018 at 1.27am
- [16] SIM800l module at <<https://www.teachmemicro.com/arduino-gsm800l-tutorial/>> last accessed on 04-09-2018 at 1.37am
- [17] L298N Motor driver at <<https://www.makerlab-electronics.com/product/l298n-dual-h-bridge-motor-driver-module/>> last accessed on 03-09-2018 at 11.52pm