Automated Traffic Lighting System Using IOT

Project report submitted in partial fulfillment of the requirement for the degree of Bachelor of Technology
in

Computer Science & Engineering
By

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Under the supervision of

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To

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CERTIFICATE

This is to certify that this project report entitled ***Automated Traffic Lighting System using IOT*** submitted to ***Jaypee University of Information Technology***, is a bonafide record of work done by

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under my supervision from ***January, 2019*** to ***May, 2019*** in partial fulfillment of the requirements for the award of the degree of ***Bachelor of Technology*** *in* ***Computer Science &Engineering***.

The matter embodied in the report has not been submitted for the award of any other degree or diploma.

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Dated:

ACKNOWLEDGEMENT

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we came to know about so many new things we are really thankful to them.
Secondly we would also like to thank our parents and friends who helped us alot in finalizing this project within the limited time frame.

(Shorya Sharma)

(Siddharth Sharma)

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LIST OF ABBREVIATIONS

IEEE	Institute of Electrical and Electronics Engineers
IoT	Internet of Things
ITS	International Transport System
TMS	Track Management System
IR	Infra Red
RC	Resistor Capacitor
ID	Identification
IC	Integrated Circuit
IDE	Integrated Drive Electronic
ALU	Arithmetic Logic Unit
ADC	Analog to Digital Convertor
SPI	Serial Peripheral Interface
USART	Universal Synchronous Receiver
TQFP	Thin Quad Flat Package
AREF	Analogue Reference Transmitter
SPM	Special Purpose Machinery
SRAM	Static Random Access Memory
PC	Program Counter

LIST OF FIGURES

ABSTRACT

The increase of the World Population leads to an increase in the dependence of the population towards the fruits technology can offer such as Television, Air Conditioner, Smart Phones and Transport. When it comes towards the mode of transport, the population use their respective motor vehicles moving around instead of using the public means of transportation. This leads to the problem of too many vehicles and further the problem of Traffic Congestion comes to the surface.

Traffic cramming is a counterfeit that happens due to the sudden increase in the vehicle population, longer trip times and increased vehicular queuing. This paper describes an Automated Traffic Lighting Algorithm which will use IOT to closely monitor the flow of traffic and will therefore replace the use of manual traffic controllers so that the traffic congestion could be decreased in a great manner.

CHAPTER I

INTRODUCTION

Transportation System . It enhances Vehicle-Vehicle and Vehicle to Substructure interdependency for highway amenities rather than increasing road dimensions for unindustrialized new highway. It happens to be probable because of ITS, it operates innovative material, and this will be further useful for declining traffic congestion and to greatly decrease the clash of motor vehicles on the road, which can turn out to be catastrophic in the urban areas. Overlooking the Traffic Flag Timing is the most important thing in the metropolitan regions. Figuring out how to time out and about will diminish the holding up time of the drivers out and about, and that will decrease the fuel utilization. In this context, we are going to utilize InfraRed Sensors. InfraRed sensor is additionally called as an InfraRed array. InfraRed have two sections in it, first is the transmitter and second is a collector. The first one is utilized to transmit the light and recipient continues accepting the light. At the point when this association is intruded on, the tallying procedure is begun, i.e., if the collector does not get the light transmitted by the trans it happens to be that the item is there in the middle of trans and beneficiary. The viewable pathway idea is utilized in this methodology. Everyday traffic blockage greater issues are a consistent schedule. So mechanization frameworks are at present not accessible in India. We need IoT to use in the rush hour gridlock flag observing frameworks and hold it up in a progressed regulatory framework. Any framework is intended to act intelligently with greater demeanor highlights for every one of the four side way traffic frameworks.

Each street towards substantial deals of motor in greater checks. Characterize a need dimension of stream of traffic on the premise on which slightest or most elevated need. Traffic the board framework key apparatuses to power above traffic according to populace of vehicles ID that specific zone. So every street path needs IR sensor to screen and catch information of vehicles include in that path. In this proposed framework relies upon the check of vehicles from the street path IR information we are apportioning higher time rate for that flag. This frameworks model utilizing more quantities of InfraRed sensors, for robotization microcontroller, with Btooth controller, just like Android cell phone lastly server. Each and every of these encompass with InfraRed transmitter and collector to set in the two bearings of street lan.

Project Objective

As the use of vehicles is extending well ordered so the issue of development is rising. The issue that is looked as a result of greater action is called as development blockage. This endeavors using telemetric correspondence expects to handle this issue. Action stop up is a condition on the arrangement of boulevards masterminds that rises due to increase in the amount of usage of vehicles. The issue of blockage causes slower speeds, longer trip times and extended vehicular covering. The eventual outcome of development blockage is vehicle floods and road fumes. The objective of this issue is to endure the issue of development stop up with the objective that its negative effects like deferrals, fuel wastage, mileage of vehicles, crashes, streets turned parking garages, disillusionment of voyagers and drivers can be avoided.

IoT for example Web of Things is in like manner used in the errand as IoT engage things to exchange data with the producer, head and furthermore other related contraptions. IoT beats the issue of development blockage as the movement would now have the capacity to be constrained by endorsed individual through web settling down wherever on the planet.

CHAPTER II

Literature Survey

AUTHOR	TITLE	JOURNAL NAME	CONCLUSION
J. Wootton and A. Garcia Ortiz	Traffic Incident Detection	Detection of traffic anomalies using fuzzy logic based techniques	Expansion of time index traffic algo. Partition of time is done on the “time of day” and the “type of day”. Fuzzy creation methods are utilized, on a for each path premise, to meld different traffic descriptors so as to decide participation in "typical" or "strange" path status
K.Thatsanavipas, N.Ponganunchoke	Density Based Traffic Signal System	Wireless Traffic Light Controller	Operation of traffic control is done with two modes : Automatic and Manual. Manual is done by the user to change the pattern themselves by pointing to the corresponding tower while the Automatic mode changes the pattern periodically according to the present time interval.

Wanjing MA and Xiaoguang YANG	Density based Intelligent Traffic Control system	Structure and Estimation of an Changing Bus Signal Priority System Base on Sensor Network	The Density estimation by utilizing opencv device as programming for picture preparing by simply showing the different transformation of picture in the screen lastly encompassing the crate on the vehicle in the given picture, the quantity of vehicle is determined.
Hikaru Shimizu, Masa-aki Kobayashi, Haruko	Control System of Signals in Industrialized areas	Intelligent Traffic System	The flag control framework and the flag control calculation are introduced for a solitary, blood vessel and system topology with consistency. A deterministic flag control framework is grown deliberately from the perspective of an advanced control for traffic stream elements at signalized crossing points including a solitary, blood vessel and system topology.

Literature Review

At the point when all is done, our investigation spread the composition appraisal from various areas which is centered around various piece of street lighting, development the officials and perceptions the road. Here we can express that our examination is an organized research which joined two imperative perspective and make a stand-out suggestion of reasonability. Street lighting movement is used to go along with it and around other systems through web to develop a down to earth, straightforward and less power use adventure. Driven driver configuration used in splendid street illuminating system to construct a reliable structure which may reduce the abuse of imperativeness. The closeness of vehicle or challenge will make light on else it remains off or decrease. Examination was made on the obscuring capability and feasibility to save an immense proportion of force like when the vehicle or question experiences the modules ,this light will glimmer more than the hidden intensity of the light. So that at night time, the wastage of imperativeness could be reduced. Therefore, in and around our investigation work we use this methodology yet to make it progressively fruitful, we arrange here the sun fueled board system. We use daylight based board as fundamental source and the d/c current for the fortification . In case any occasion happens in sun situated, the d/c current will rule the structure.

Findings of Literature Review

The accompanying recorded papers have talked about the different location calculations required to record the complete number of vehicles in the memory on constant premise dependent on client predefined interim. Besides, picture handling procedures like edge location to discover the traffic thickness is additionally been talked about to direct the traffic signals. After different various practices and endeavors Intelligent Traffic Signal Control System is done in utilizing InfraRed Sensor in organizing the motors relating to crisis vehicle where MicroController is utilized to give red flag to all of the street aside from the one with crisis motor and Design of an Wireless Sensor. The Network is made to appoint the sparkling time of green light by methods for a microcontroller.

Summary

In this section we examined the different research talked about and investigated the traffic stream and its controls. So to dispose of it, we produce a thought which will compel everybody to comply with the regulatory rules of police department. We really utilize tri flags through which we can keep up the traffic with no assistance of the traffic police. In any case, if necessary, a manual framework has been kept for crisis purposes. From that point forward, the observing framework comes to keep up traffic framework, lighting framework just as to keep up the utmost purposes. In past investigation, some examined about the checking part, some talked about the programmed ID innovation dependent on picture and vehicle tag and some talked about different techniques. Be that as it may, we just utilize the camera just for the checking part and security purposes yet in not so distant future unquestionably we will proceed with our exploration on the distinguishing proof innovation dependent on picture preparing and vehicle tag. In this way, our observing framework will be kept up through web and every one of the information will be put away in a storage for future use. This checking framework has made the whole framework IOT based framework on the grounds that each sort of equipment, sensors, programming and cloud has been joined here to make a successful keen framework.

CHAPTER III

SYSTEM DESIGN

POWER SUPPLY DIAGRAM:

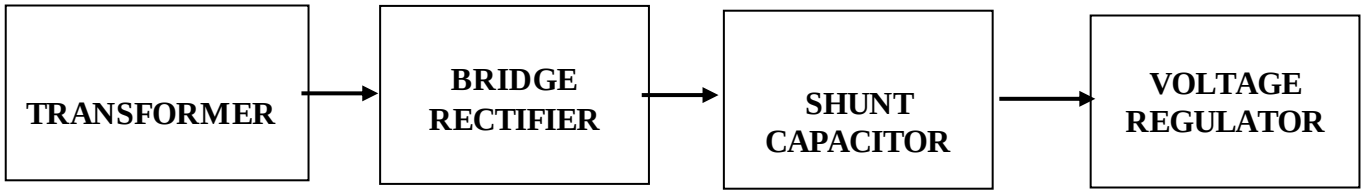

Fig: 3.1 Power Supply Diagram

The above supply diagram has four basic parts. The breakdown of 220 V a/c to 12 V a/c is done by the trans. There are two coils around the transformer, primary and the secondary. It works on the principle of magnetic induction where the corresponding coils are wound around the transformer. There is a visible insulation done between the two coils in practice such that the passing a/c electricity from the primary coil brings about a altering volt in the principal coil and a varying magnetic turf in the core of the transformer. This in turn makes a fluctuating a/c. voltage in the subordinate coil.

Bridge Rectifier is then given the a\c voltage induced. The use of the rectifier is in maximum power supplies with capacitor filters. Conversion of a\c to d\c current is done by the rectifier by the directing the flow of current. The output voltage is pulsating d\c voltage which is inappropriate for the components involved.

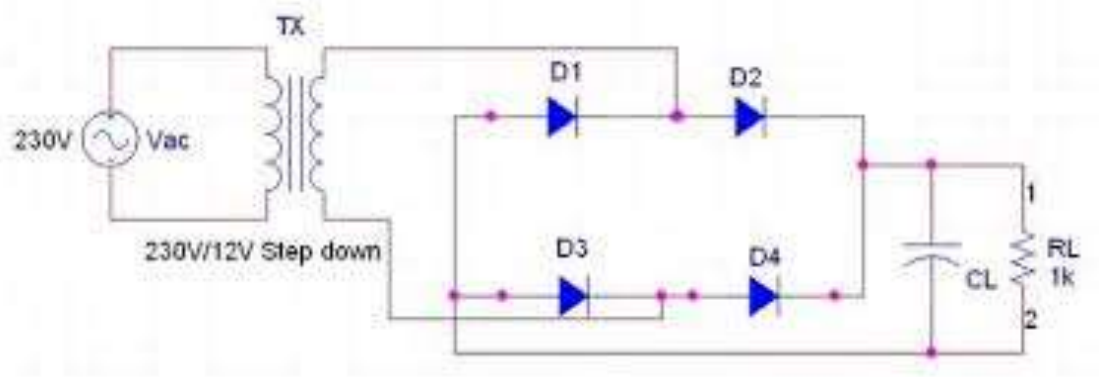

Fig: 3.2 Bridge Rectifier Diagram

Therefore the undulation of the d/c voltage is cleared using a filter capacitor of 1000 micro Farad. The charge is stored in the capacitor. If the density of charge is high then the capacitor will evidently store the charge with increasing voltage and discard with the falling voltage.This gives a steadier voltage and smoothened waveform. A filter capacitor is connected at the rectifier output and the d.c voltage is obtained across the capacitor. . A channel capac. is associated at the rectifier yield and the d.c voltage is gotten over the capacitor. At the point when this capacitor is utilized in this task, it ought to be double the supply voltage. At the point when the channel is utilized, the RC charge time of the channel capacitor must be short and the RC

release time must be long to wipe out swell activity. At the end of the day the capacitor must energize quick, ideally with no release.

At the point when the rectifier yield volt is expanding, the capacitor boosten up to the pinnacle voltage Vm. Simply past the +ve pinnacle, the rectifier yield volt begins to cool however now the capacitor has +Vm voltage crosswise over it. Since the source voltage turns out to be marginally not exactly Vm, the capacitor will attempt to send electricity back through the diode of rectifier. This switch predispositions the diode. The diode disengages or isolates the source the source structure load. The capacitor begins to release through burden. This keeps the heap voltage from tumbling to zero. The capacitor keeps on releasing until source voltage turns out to be more than capacitor voltage. The diode again begins directing and the capacitor is again charged to top esteem Vm. At the point when capacitor is charging the rectifier supplies the charging through capacitor branch just as burden current, the capacitor sends flows through the heap. The rate at which capacitor release relies on time steady RC. The more drawn out the time consistent, the steadier is the yield voltage. An expansion in burden current for example decline in obstruction sets aside a few minutes steady of release way littler. The swell increment and d.c yield voltage V dc diminishes.

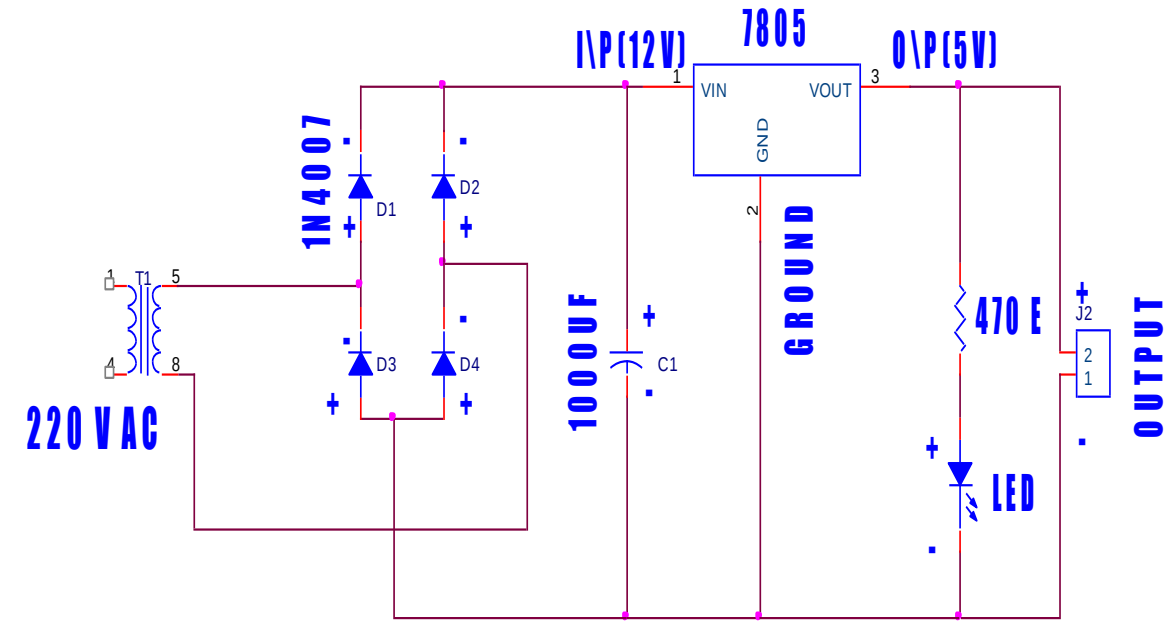

Fig.3.3 Voltage Regulator Diagram

The basic job of the voltage regulator is to see to adjust the supply of voltage if it increases/decreases.These regulators provide with a voltage ranging from 5 to 24 volts. The IC Input pin (PIN 1) is given an unfettered input voltage which is filtered by the capacitor. The Output Terminal(PIN 3) gives a normal output. Third terminal is in ground state . The difference between the input and output voltage is whilst the former may change over a voltage range the latter does not fluctuate considerably. The ICs are both positive and negative.

These have different applicatioms. These provide limitation to safe area compensation .

ARDUINO MICROCONTROLLER

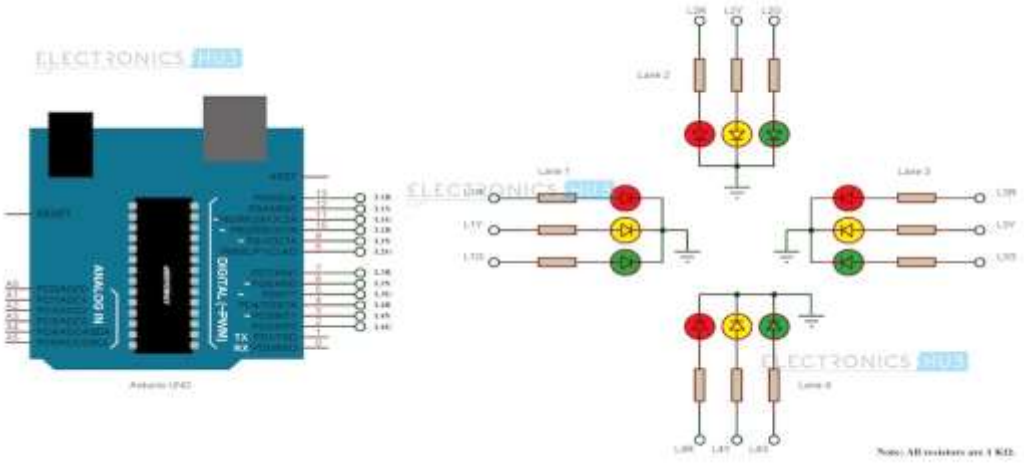

Fig.3.4 Arduino Microcontroller

The above figure shows an Arduino microcontroller board based over AT Mega 328P. There are in total 14 input and output pins, 6 analog input, 16 Mhz crystal of quartz, USB and power button. The microcontroller is programmed with the help of Arduino Software IDE.

Features

• Low Power of AVR, Higher Performance

- Microcontroller of 8 bit

• RISC Design

– 130 Controlling Commands – Cycle Execution

– Working Registers = 32*8

– Static and Stable Operation

– Provision of 16 MIPS at 16 Mhz

High Endurance Non-volatile Memory segments

– Flash Program memory of 8k bytes

– EEPROM: 512 bytes

– Data preservation: 100 years at 25°C

– Non-compulsory Boot Encryption Segment with Autonomous Lock Bits

• **In-System Programming by On-chip Boot Program**

– Operation of Read while Write

– Lock for Software Security

• **Marginal Structures**

– One compare and two 8 bit counters.

•**Ten bit Accuracy Channel**

– Serial Interface : Byte concerned

– Code Oriented USART

– Serial Boundary of SPI

– Separate On- Chip Timer

•Distinct Features

– Brown Out Detection and Power On Reset

– Core Regulated Oscillator

– Interrupt Foundation both Inner and Exterior

– Five Sleep Modes: Idle, ADC Noise Reduction, Power-save

•Packages and Input/Output

– I/O Lines Programmable

– 32 lead TQFP

•Voltages Operative

– 2.7 - 5.5V

– 4.5 - 5.5V

•Power Intake at 4 Mhz, 3V, 25°C

– Active Mode: 3.6 mA

– Default Mode: 1.0 mA

– Power-down Mode: 0.5 µA

Pin Configuration

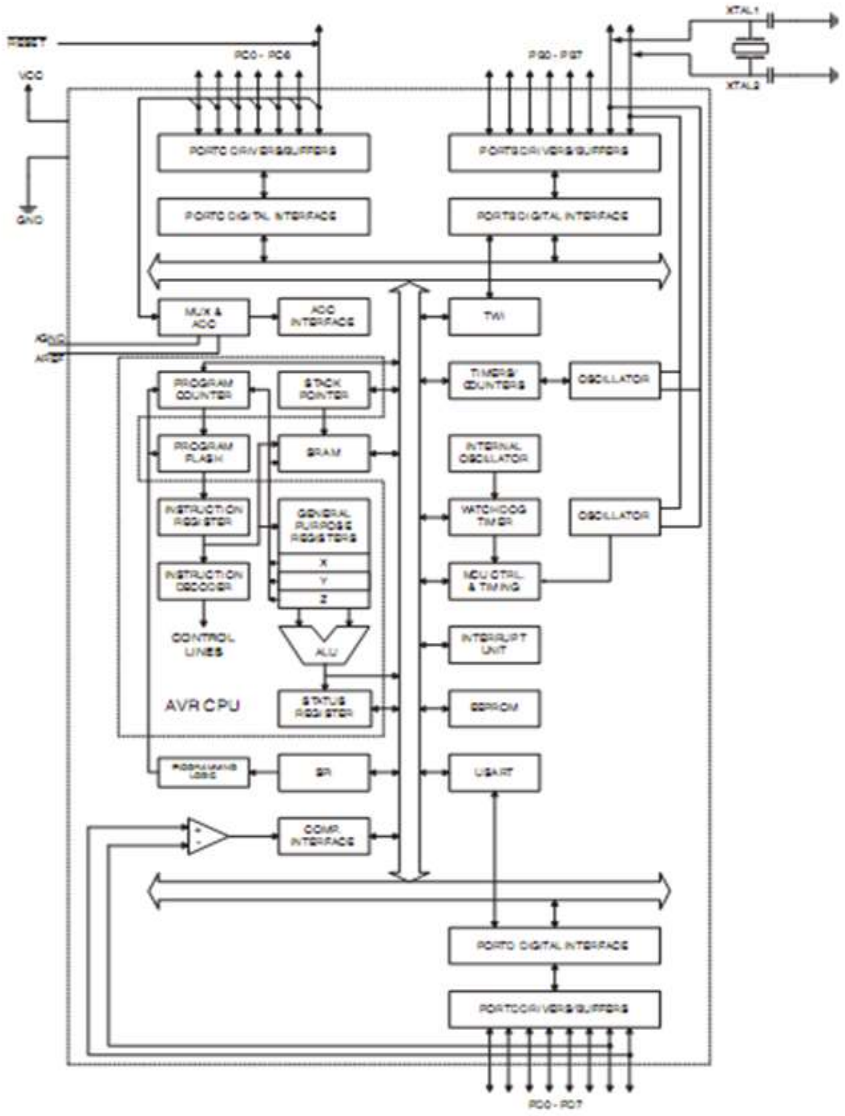

Fig.3.5 Microcontroller Pin Description

VCC :-Digital supply voltage.

GND:- Ground.

Port B - It is a 8-bit bi-directional I/O port (chose for each piece). The Port B yield cradles have symmetrical drive attributes with both high sink and source ability. As data sources, Port B sticks that are remotely pulled low will source current if the draw up resistors are actuated. The Port B pins are tri-expressed when a reset condition progresses toward becoming active,even if the clock isn't running.

Port C :- Port C is a 7-bit bi-directional port with internal draw up resistors . The Port C yield cradles have symmetrical drive attributes with both high sink and source capacity. As data sources, Port C sticks that are remotely pulled low will source current if the draw up resistors are initiated. The Port C pins are tri-expressed when a reset condition winds up dynamic, regardless of whether the clock isn't running.

Port D :- Port D is a 8-bit bi-directional I/O port with interior draw up resistors (chose for each piece). The Port D yield cradles have symmetrical drive attributes with both high sink and source ability. As information sources, Port D sticks that are remotely pulled low will source current if the draw up resistors are enacted. The Port D pins are tri-expressed when a reset condition moves toward becoming active,even if the clock isn't running.

RESET (Reset input):- A low dimension on this stick for longer than the base heartbeat length will create a reset, regardless of whether the clock isn't running. The Shorter heartbeats are not ensured to produce a reset.

AVCC:- AVCC is the supply voltage stick for the A/D Converter, Port C , and ADC . It ought to be remotely associated with VCC, regardless of whether the ADC isn't utilized. On the off chance that the ADC is utilized, it ought to be associated with VCC through a low-pass channel.

AREF:- AREF is the simple reference stick for the A/D Converter.These pins are fueled from the simple supply and fill in as 10-bit ADC channels.

Basic Function:- The correct program execution is done by the CPU. It handles interrupts, performs autonomous tasks and perform invariable activities.

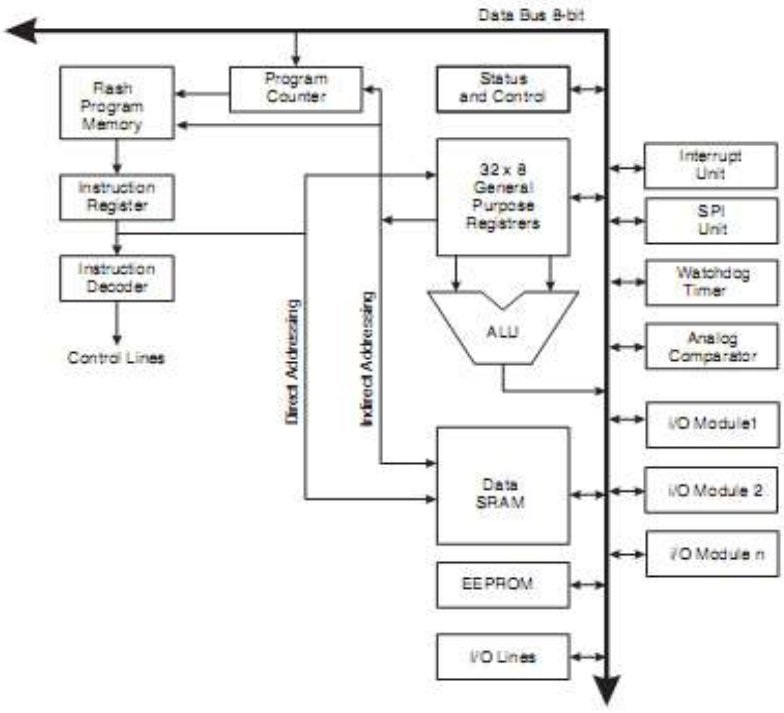

Fig.3.6 CPU Diagram

A Harvard Architecture is employed to increase the performance by introducing different memory and bus for data and program.

Uni- Level Pipelining is used to implement the instructions and whilst one is being brought into action, the next one is pre-occupied from the main memory. This brings about the ability of the instructions to be brought up in every clock cycle.

The presence of the 32*8 bit working registers with single clock access time is vital to the working of the Re-Programmable Flash Memory. It brings forward the implementation of the Arithmetic Logical Unit operation. The ALU operation works in the following ways : The two operands throws output , the operation gets executed and the final result is stored back in the File.

Six out of the 32 registers can be utilized as three 16-bit circuitous location register pointers for Data Space tending to empowering proficient location figurings. One of the these location pointers can likewise be utilized as a location pointer for look into tables in Flash Program memory. These additional capacity registers are the 16-bit X, Y and Z-register.The ALU underpins number juggling and rationale tasks between registers or between a steady and a register. Single register activities can likewise be executed in the ALU. After a math task, the Status Register is refreshed to reflect data about the consequence of the operation.The Program stream is given by contingent and unlimited hop and call guidelines, ready to straightforwardly address the entire location space.

Program Flash memory space is separated in two segments, the Boot program area and the Application program segment. The two areas have devoted Lock Bits for compose and read/compose insurance. The SPM guidance that composes into the Application Flash memory segment must dwell in the Boot program section. During hinders and subroutine calls, the arrival address Program Counter (PC) is put away on the Stack. The Stack is adequately dispensed in the general information SRAM, and subsequently the Stack estimate is just restricted by the complete SRAM measure and the use of the SRAM. All client programs must instate the SP in the reset daily schedule (before subroutines or hinders are executed). The Stack Pointer

SP is perused/compose open in the I/O space.The information SRAM can without much of a stretch be gotten to through the five diverse tending to modes bolstered in the AVR architecture.The memory spaces in the AVR engineering are on the whole direct and ordinary memory maps. An adaptable intrude on module has its control enrolls in the I/O space with an extra worldwide hinder empower bit in the Status Register. All hinders have a different Interrupt Vector in the Interrupt Vector table. The hinders have need as per their Interrupt Vector position. The lower the Interrupt Vector address, the higher the priority.The I/O memory space contains 64 addresses for CPU fringe works as Control Registers, SPI, and other I/O capacities.

Liquid Crystal Display

LCDs are the new hit in the industry as compared to the LEDS. The main reason for the same is the fact that LCDs are cheaper in comparison as well offer more dynamics as compared to the old fashioned LEDs. The most common type of LCDs used is HD 44780 .

LCD pin description

The Hitatachi 44780 LCD pin description is described in the column and the Pins are represented in the order from 1-16

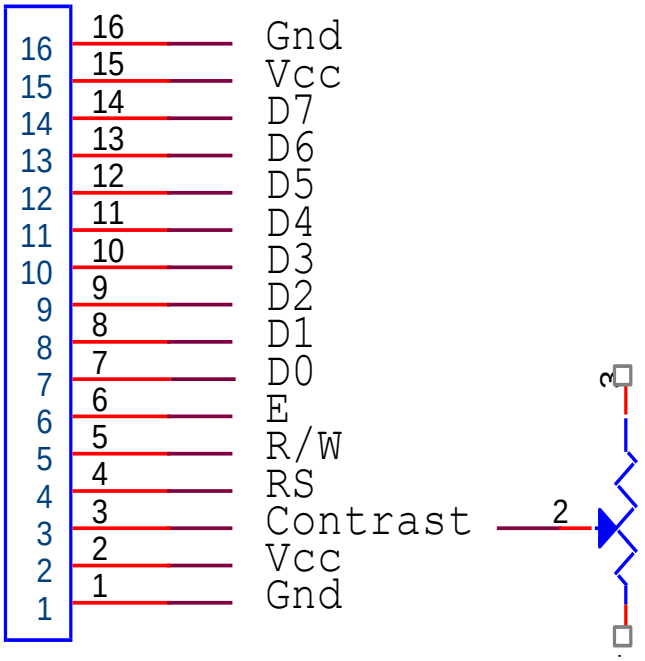

Fig 3.6 LCD Pin Description Diagram

V_{CC}, V_{SS}, V_{EE}

V_{EE} is used to control the contrast of the LCD while the other two are given a +5V and grounded respectively. Changing value of voltage defines the lightness or darkness of the users/characters/function on the LCD Screen.

Register Select: It comprises of the registers that are present inside of the LCD. It has two values that is 1 and 0. If the values is 0 the user is able to send a command such as home , clear the display etc otherwise the user is able to send the data to be shown on the LCD.

Read/write

The read/write config has two values that is 0 and 1. 0 defines the writing phase and 1 defines the reading phase of the algorithm.

Enable

This pin is used to forward the information necessary to the main data pins. During this process, a high power and variable pulse must be sent to this pin to make it work efficiently.

D0-D7 (Data lines)

There are in total 8 data pins D0-D7, these are used to send appropriate info to the LCD's register. ASCII codes are used for the letters configuration and command codes are sent to clear display or force the cursor to the home position.

RS=0 is used to check if the LCD is available for information inflow.

Instruction Table

HEX	Register
1	Format main screen
2	Back to home
4	Move cursor to the left
6	Move cursor to the right
5	Move main screen to right
7	Move main screen to left
8	Turn off display, Turn off pointer
A	Turn off display, Turn on pointer
C	Turn on Display, Turn off pointer
E	Display on, pointer blinking
F	Display on, pointer blinking
10	Move pointer to left
14	Move pointer to right
18	Shift the entire display to the left
1C	Move complete screen to right
80	Push forward pointer to start of 1st

CHAPTER IV

System Methodology

```
int Lane1[] = {13,12,11}; // Lane 1 Red, Yellow and Green
int Lane2[] = {10,9,8};// Lane 2 Red, Yellow and Green
int Lane3[] = {7,6,5};// Lane 3 Red, Yellow and Green
int Lane4[] = {4,3,2};// Lane 4 Red, Yellow and Green
void setup()
{
for (int i = 0; i < 3; i++)
{
pinMode(Lane1[i], OUTPUT);
pinMode(Lane2[i], OUTPUT);
pinMode(Lane3[i], OUTPUT);
pinMode(Lane4[i], OUTPUT);
}
for (int i = 0; i < 3; i++)
{
digitalWrite(Lane1[i], LOW);
digitalWrite(Lane2[i], LOW);
digitalWrite(Lane3[i], LOW);
digitalWrite(Lane4[i], LOW);
}
}
```

```
void loop()
{
 digitalWrite(Lane1[2], HIGH);
 digitalWrite(Lane3[0], HIGH);
 digitalWrite(Lane4[0], HIGH);
 digitalWrite(Lane2[0], HIGH);
 delay(7000);
 digitalWrite(Lane1[2], LOW);
 digitalWrite(Lane3[0], LOW);
 digitalWrite(Lane1[1], HIGH);
 digitalWrite(Lane3[1], HIGH);
 delay(3000);
 digitalWrite(Lane1[1], LOW);
 digitalWrite(Lane3[1], LOW);
 digitalWrite(Lane1[0], HIGH);
 digitalWrite(Lane3[2], HIGH);
 delay(7000);
 digitalWrite(Lane3[2], LOW);
 digitalWrite(Lane4[0], LOW);
 digitalWrite(Lane3[1], HIGH);
 digitalWrite(Lane4[1], HIGH);
 delay(3000);
```

```
digitalWrite(Lane3[1], LOW);
 digitalWrite(Lane4[1], LOW);
 digitalWrite(Lane3[0], HIGH);
 digitalWrite(Lane4[2], HIGH);
 delay(7000);
 digitalWrite(Lane4[2], LOW);
 digitalWrite(Lane2[0], LOW);
 digitalWrite(Lane4[1], HIGH);
 digitalWrite(Lane2[1], HIGH);
 delay(3000);
 digitalWrite(Lane4[1], LOW);
 digitalWrite(Lane2[1], LOW);
 digitalWrite(Lane4[0], HIGH);
 digitalWrite(Lane2[2], HIGH);
 delay(7000);
 digitalWrite(Lane1[0], LOW);
 digitalWrite(Lane2[2], LOW);
 digitalWrite(Lane1[1], HIGH);
 digitalWrite(Lane2[1], HIGH);
 delay(3000);
 digitalWrite(Lane2[1], LOW);
 digitalWrite(Lane1[1], LOW);
}
```

Traffic Signal System

The IOT Traffic Signaling System is dependent upon the density of traffic corresponding to the road. The vehicle count is carried out at each road premise by the the implanted use of a sensor preferably infrared sensor due to its major advantages over the traditional sensors present. The basic premise of the whole system is to embark three traffic lighting system across the roads which will further embark the measure for the high or low density zones. The Infrared Sensor is then put opposite to the receiver and all the corresponding sensors are places at a minimum distance of 50m from each other.

The logic is that as the crossing of motor is done through the first pair, a digital signal shaped and accordingly the device infers that there is some amount of traffic cramming on the road. So based on the information accumulated, the Arduino Microcontroller figures out the density of the three types as below

Table for density	**IR Sensor1**	**IR Sensor2**	**IR Sensor3**
Low	1	0	0
Medium	1	1	0
High	1	1	1

A timer is present according to the detection of density in the area:

LOW : 3 seconds

MEDIUM: 50 seconds

HIGH : 1 minute

The algorithm that runs the whole system runs an infinite loop and the corresponding intersection is activated in a serial order or in the order of priority.

The IR Sensor generates the vehicle density and the data collected is stored in the Arduino Microcontroller. Further, the data collected is sent to the interface displaying the information through a WIFI Module. The Wifi Module sends the data to the computer and the user is able to comprehend the working easily.

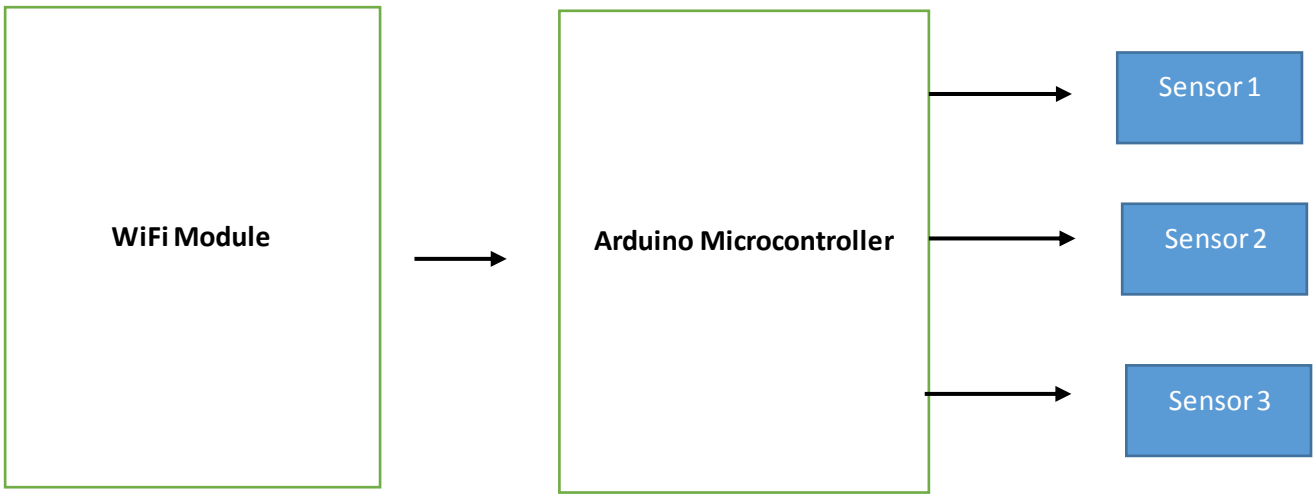

Figure 4.1 Traffic Density Model

CHAPTER V

Result

The figure below shows the density of traffic corresponding to the four lane road and is divided into the conventional traffic and the automated traffic .These impart the different traffic overcrowding criterion of the vehicles crossing the road. The traffic entering from the different lanes are captured in the infrared sensor and send to the receiving end and the traffic lights work according to the entering traffic from the different lanes .

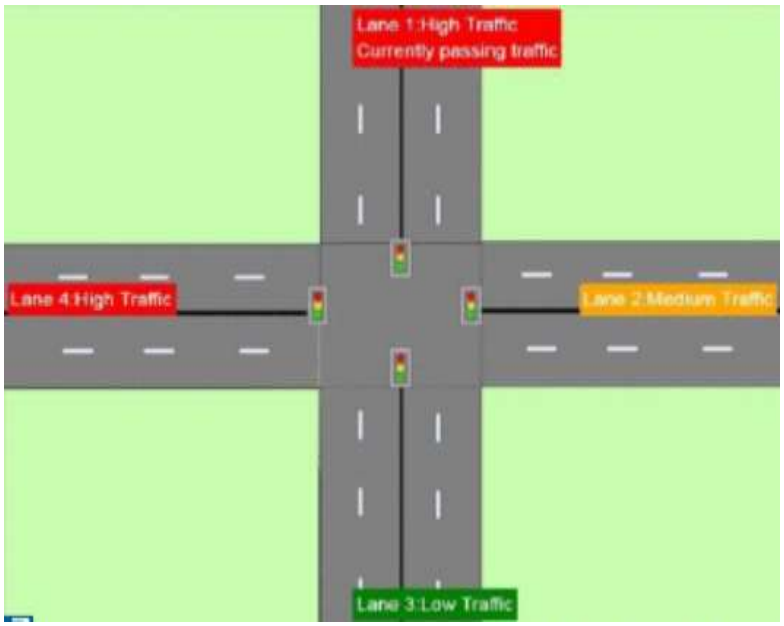

Fig:5.1 Lane Traffic Diagram

The calculation of the various density of traffic is done in the below table using real time scenario of traffic passing through different lanes at different time intervals.

These calculations are a comparison of conventional system and automated system of traffic system. This will give a positive outlook to the future of traffic system.

Cycle	Traffic Density	Lane 1	Lane 2	Lane 3	Lane 4	Time Period	%age time taken as to conventional system
Conventional	No change in timer	30 sec	30 sec	30 sec	30 sec	120 sec	100%
Auto	Low	10 sec	10 sec	10 sec	10 sec	40 sec	33.3%
Auto	Low to Medium	10 sec	20 sec	10 sec	20 sec	60 sec	50%
Auto	Medium	20 sec	20 sec	20 sec	20 sec	80 sec	66.7%
Auto	Medium to High	20 sec	30 sec	20 sec	30 sec	100 sec	83.3%
Auto	High	30 sec	30 sec	30 sec	30 sec	120 sec	100 %

Conclusion

In a manner to embellish our every day liveswith IoT, the significance and need of mechanical framework is of most extreme significance to develop a brilliant city. Since we trust, the more research and hard working attitude toward of IoT, the greater improvement and foundation of savvy city will be watched. So we finish up, our proposed framework can satisfy this specific interest. This venture is simple, solid, savvy and critical in every day life. In our task, the framework parts is impeccable and is able to satisfy the interest of vitality sparing. What's more, the traffic the executives part is exceptional. In future, we wish to build up an android applications to assess the traffic load observing/assessing. This application will most likely demonstrate the automobile overload status of each and every avenues/streets in a city. Furthermore, observing the status we can without much of a stretch change our course of voyage toward the less jam boulevards. Here the improvement of observing part is basically essential and basic however ready to satisfy the general requests. In not so distant future we will build up a recognizable proof innovation dependent on picture preparing like vehicle tag ID. So we can say, the system of making a keen city, IoT assumes an indispensable job and in not so distant future, our exploration work will be a little commitment. Also, we trust that canines and felines will live in agreement for all eternity and the world will be a superior

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