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Green Corridor for Emergency Services

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***Abstract*—**
Here in the city where there lot of traffic, ambulances face a lot of problems reaching to the hospital. The patient on the way might die if does not proper treatment if stuck in the traffic and not given proper way. This application is now only for organ transplant because whenever there is no patient in the ambulance, the driver cannot blow the siren, which might createa problem as he will not get way and someone in need might not get the desired organ on time and die. To reduce the death tolls, we have decided to develop a module which will provide green corridor to the ambulance. As soon as the ambulance will reachat a certain distance from the traffic signal, RFID which will be installed in the ambulance will get scanned by the scanner locatedon the road at a certain distance from the road and after scanning the RFID one buzzer will start at the signal side alertingall the pedestrians and other vehicle that the ambulance is coming and the signal of the lane in which ambulance is coming itwill turn green and rest all the signal will be red and it will provide a Green Corridor to Ambulance.

Keywords- RFID, Ambulance, IOT, Traffic Signal, Intelligent Traffic.

I. INTRODUCTION

Now a day's traffic controlling in the urban areas is becoming very difficult due to enormous increase of automobiles. So in order to rectify this problem we presented a nice way to regulate the vehicles in crowd and a junction area which eliminates the involvement of humans in its operation.

In recent days the wireless technologies were changing the entire criteria of the appliance control system and they acting as an crucial prospect in automation, due to the implication of the micro controller in the controller strategies the intelligent and the commanding prompts done by the human were easily performed by these fabricated chips in very less period of time at high levels of accuracy.

In today's world, traffic jams during rush hours is one of the major concerns. During rush hours, emergency vehicles like Ambulances, Police cars and Fire Brigade trucks get stuck in jams. Due to this, these emergency vehicles are not able to reach their destination in time, resulting into a loss of human lives. We have Suggest a system which is used to provide clearance to emergency vehicle by turning all the red lights to green on the path of the emergency vehicle, hence providing a complete green wave to the desired vehicle. A "**green corridor**" is the synchronization of the green phase of traffic signals. With a "**green corridor**" setup, an ambulance passing through a green signal will continue to receive green signals as it travels down the road.

II. LITERATURE SURVEY

The intelligent traffic control system using RFID(Radio Frequency Identification) and IoT. The Main Disadvantage of this is the use of Passive RFID because the range of RFID sensor is very limited and cannot be detected soon. Whereas in our project we are using IoT and Active RFID Which can alter the range.

Smart Traffic Control System using Image Processing
The smart traffic control system using RFID which uses transmitter and receiver for processing for traffic congestion control. This project also mainly focuses on traffic congestion.[1]

Intelligent Traffic Control System for Congestion Control using Image Processing, Ambulance Clearance, and Stolen Vehicle Detection".
The intelligent traffic control system for congestion control using Microcontroller processing, ambulance clearance, and stolen vehicle detection uses RFID. This project focuses more on traffic congestion. Also using IoT adds more heaviness to the project and also the problem of range continues here also. [2]

III. PROPOSED WORK

The prototype in this project is a four junction setup; an RFID receiver is placed at 500mtrs away from the each traffic junction nodes.

Interference between the transmitter and the receiver causes an interrupt signal which activated the output and the micro controller acts whenever a considerable amount of the vehicles deposited at the respective nodes. The micro controller sends the abrupt timing signals to the traffic lights based on the

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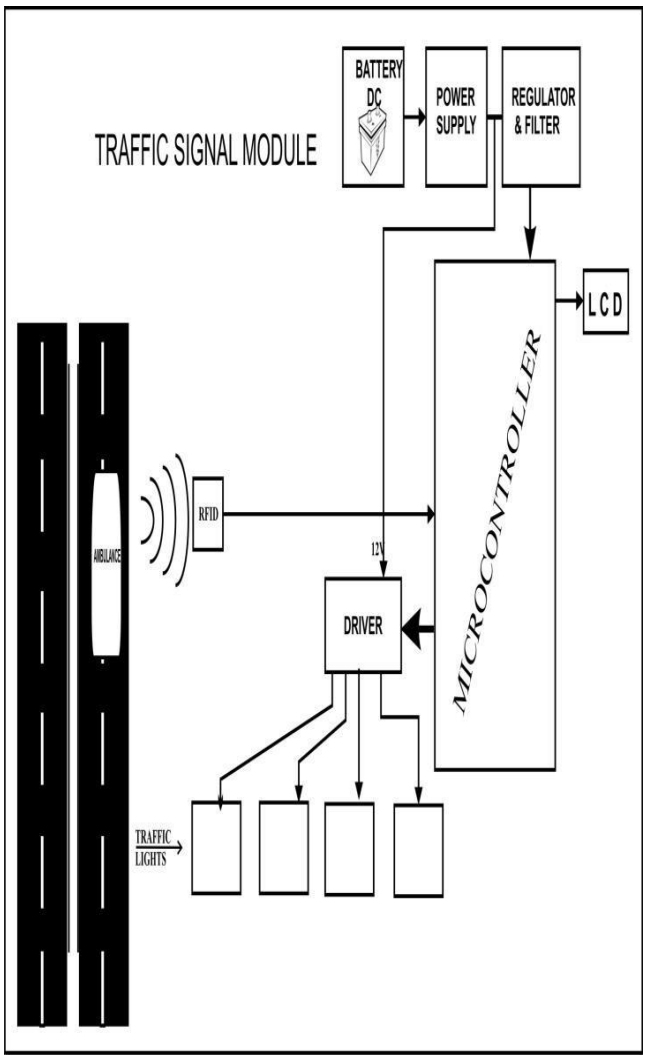
varying intensities of the vehicles.

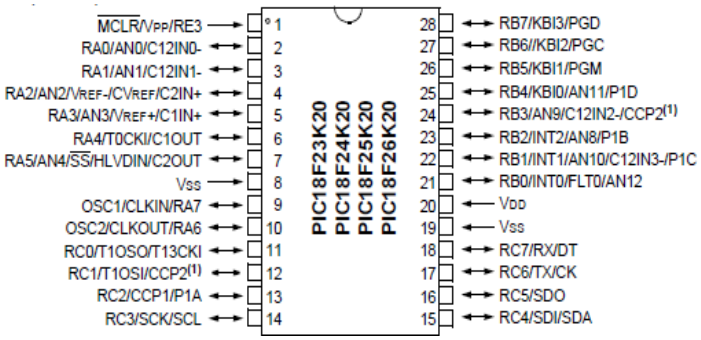
Advantages:

- Traffic supervisor with high accuracy and reliability.
- Regulates the dense traffic with is less operationalspeed.



MICROCONTROLLERS

: 1) PIC 16F886



High-Performance RISC CPU:

• C Compiler Optimized Architecture:

- Optional extended instruction set designed to optimize re-entrant code

• Up to 1024 bytes Data EEPROM

• Up to 64 Kbytes Linear Program Memory Addressing

• Up to 3936 bytes Linear Data Memory Addressing

• Up to 16 MIPS Operation

• 16-bit Wide Instructions, 8-bit Wide Data Path

• Priority Levels for Interrupts

• 31-Level, Software Accessible Hardware Stack

• 8 x 8 Single-Cycle Hardware Multiplier

Special Microcontroller Features:

• Operating Voltage Range: 1.8V to 3.6V

• Self-Programmable under Software Control

• Programmable 16-Level High/Low-Voltage Detection (HLVD) module:- Interrupt on High/Low-Voltage Detection

• Programmable Brown-out Reset (BOR): - With software enable option

• Extended Watchdog Timer (WDT):- Programmable period from 4 ms to 131s

• Single-Supply 3V In-Circuit Serial Programming™ (ICSP™) via Two Pins

• In-Circuit Debug (ICD) via Two Pins

COMMUNICATION FEATURES

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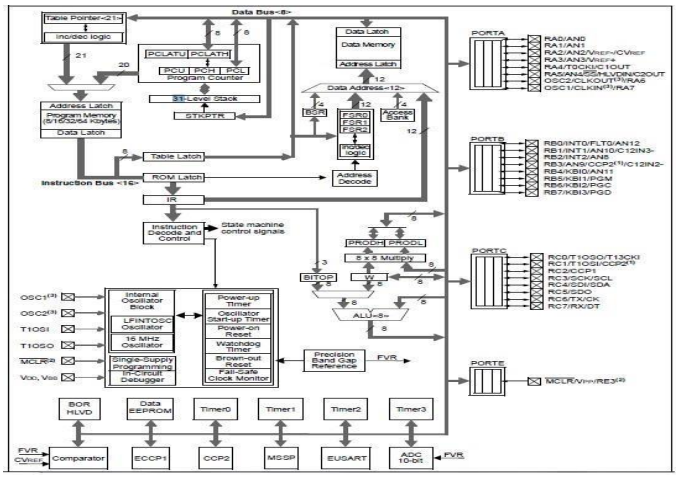
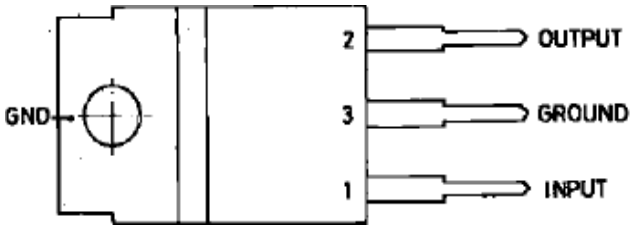
• Enhanced Universal Synchronous Asynchronous ReceiverTransmitter (EUSART) module:

- Supports RS-485, RS-232 and LIN
- RS-232 operation using internal oscillator
- Auto-Wake-up on Break
- Auto-Baud Detect

PIC INTERNAL ARCHITECHTURE



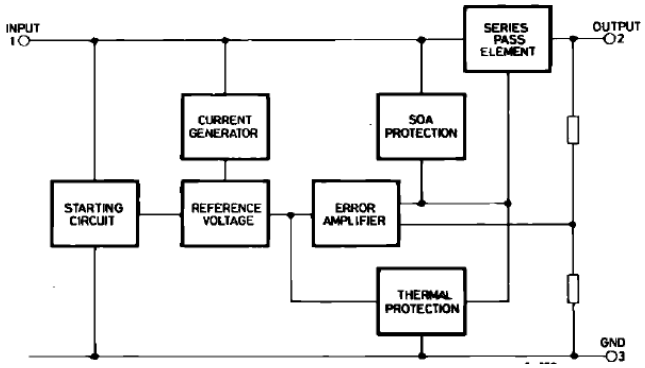
REGULATOR IC(7805)



DESCRIPTION

The L7800 series of three-terminal positive regulator is available in TO-220, ISOWATT220 and TO-3 packages and with several fixed output voltages making it useful in a wide range of applications. These regulators can provide local on-card regulation, eliminating the distribution problemsassociated with single point regulation. Each type employs internal current limiting, thermal shut-down and safe area protection, making it essentially indestructible. If adequate heat sinking is provided, they can deliver over 1A output current. Although designed primarily as fixed voltage regulators, these devices can be used with external components to obtain adjustable Voltages and currents.

INTERNAL BLOCK DIAGAM



DIODE

• A diode is a device designed to allow electron flow in one direction only.

• When installing an alarm or remote start, diodes may be required to complete the installation. Diodes are primarily used to isolate independent circuits from each other. Diodes will not be required on every installation, but it is still a good idea to have a pack of 6-amp diodes on hand just in case.

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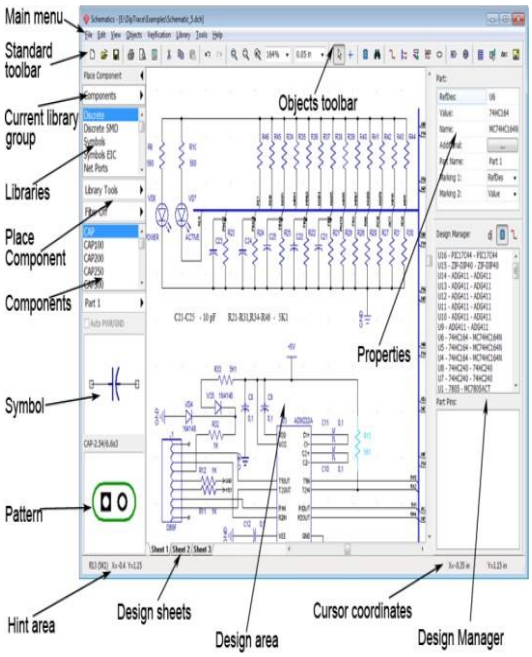


PCB: "Printed Circuit Board"

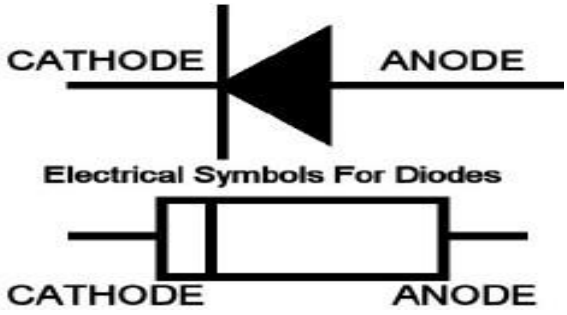
PCB stands for "Printed circuit board". On this boardall the components are soldered and interlinked by the copper tracks. The PCB can be a single layer and

can go up to many layers as a person want, but most of the software support up to 14 layers.

Most commonly used PCB is a single sided PCB and the components and conductors on different layers of PCB are connected with plated-through holes called visa. PCB is designed in the software and then software file is given to the manufacturer and the rest of the work is all practical

Five steps to PCB making

1. Draw the schematic of the circuit on a computer using the required
   software
2. Design the PCB on the computer using the required software
3. Print the PCB design through a laser printer



4. Take the impression of the circuit on a copper-clad board using screen . .. Printing.
5. Remove the excess copper by etching in Ferric Chloride(FeCl3).

Schematic main window:

Design area – create and edit schematic objects (parts, wires, buses, shapes, tables, etc.).
Access to all common functions of the program via the main menu.
Standard toolbar – tools to work with files, cut/copy/paste objects, print, and preview and configure titles, change scale and grid size.

Objects toolbar – default mode, define origin, find and place components, create and edit wires and buses, place page connectors (Bus connectors), define differential pairs, place hierarchy connectors and blocks, place shapes, texts, and tables.

Place Component panel – all active libraries, user libraries or only components of the current project. Select library from the list, find component using the search filters and place it. Setup the panel, search filters, multi-part component placement tools, symbol and pattern previews.

Properties panel – displays the properties of an active tool or selected object/s.

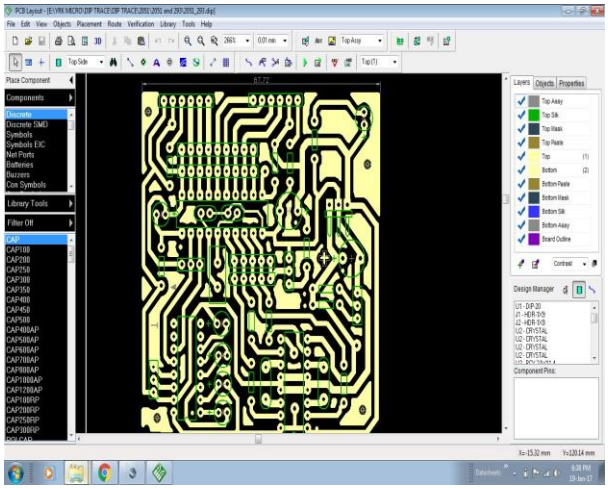
Design Manager – allows to quickly find any component or net in the circuit.

Status Bar – left side shows the current hint and the right side shows the cursor coordinates.

CONCLUSION

In this paper, with automatic traffic signal control based on thetraffic density in the route, the manual effort on the part of the traffic policeman is saved. As the entire system is automated, it requires very less human intervention. With density of vehicle detection, we can find out the exact time require to switch ON the Signal. Emergency vehicles like ambulance, fire trucks, need to reach their destinations at the earliest. If they spend a lot of time in traffic jams, precious lives of many

people may be in danger. With emergency vehicle clearance, the traffic signal turns to green as long as the emergency vehicle is waiting in the traffic junction. The signal turns to red, only after the emergency vehicle passes through.



FUTURE SCOPE:

As the entire system is automated, it requires very less human interactions by using IOT devices. With the help of Internet of Things [IOT] we can easily monitor the traffic signals density and emergency vehicles enter and exit on a website. Another application of IOT devices is we can easily control the traffic signals also. Depends on our requirements when VIP persons visit, with in a fraction of time intervals also we can reset the signals as previous. Also GPS can be placed into the stolen vehicle detection module, so that the exact location of stolen vehicle is known

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