

# Controlling Vehicle Overloading Based on Load Pressure

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**ABSTRACT:** Truck overloading monitoring system is realized by the truck load information using the dynamic measurement network with vehicle. Overloading has been recognized to be both a safety concern as well as a cost concern, and the National Department of Transport has incorporated a Campaign against overloading in its Road to safety strategy.

**KEYWORDS:** vehicle, load, six axis gyro

## I. INTRODUCTION

Vehicles, particularly cargo vehicles, are pulverizing our streets, affecting adversely on monetary development – the harm caused develops exponentially as the heap increases.[1] Harm to streets because of over-burdening prompts higher upkeep and fix costs and abbreviates the life of a street which thusly puts an extra Weight on the states just as well behaved street clients who eventually convey the expense of reckless and impolite overloading.[2] If the issue of over-burdening isn't controlled, this expense must be conveyed by the street client, which will require noteworthy increments in street client charges, for example, the fuel demand, vehicles permit charges, and over-burdening charges to specify only a couple. Over-burdening is a security risk that prompts superfluous death toll, and furthermore the fast disintegration of our streets, bringing about expanded support and transportation costs.[3] These days individuals' covetousness brings about implosion, in such case over-burdening in vehicles isn't a special case. Due to over-burdening driver loses his control or tires may blast which brings about mishaps. To maintain a strategic distance from such mishaps, it is smarter to screen the stacking of vehicles dependent on load weight of the vehicles.

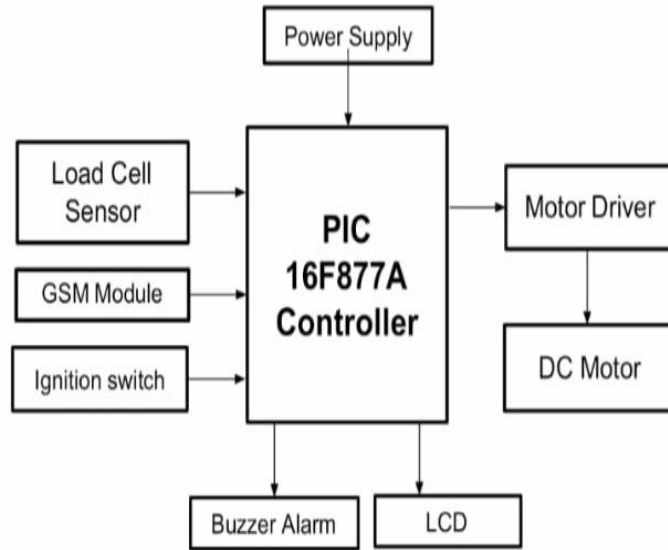


Fig.1 BLOCK DIAGRAM

## II. METHODOLOGY

Over-burdening vehicles, particularly cargo vehicles, are wrecking our streets, affecting contrarily on monetary development. The Administration has acquired an evaluated punishment framework for over-burden vehicles utilizing on the national thruways. Surpassing a vehicles most extreme reasonable weight isn't just a threat to the driver and furthermore other street employments. An over-burden vehicle is bound to be engaged with a mishap, and have more serve outcomes, at that point lawfully stacked vehicle. An over-burden vehicle is less steady in light of the expanded tallness at the focal point of gravity and more idleness of the vehicle body. An over-burden vehicles gets under controlled, this outcome in the lower speed on the up slopes incline also the danger of blockage, wasteful motor braking and over speeding on downhill slant. Surpassing likewise takes longer and in this way acquires extra hazard for different streets clients.



Fig.2 OVERLOADINGVEHICLE

### III. HARDWARE DESCRIPTION

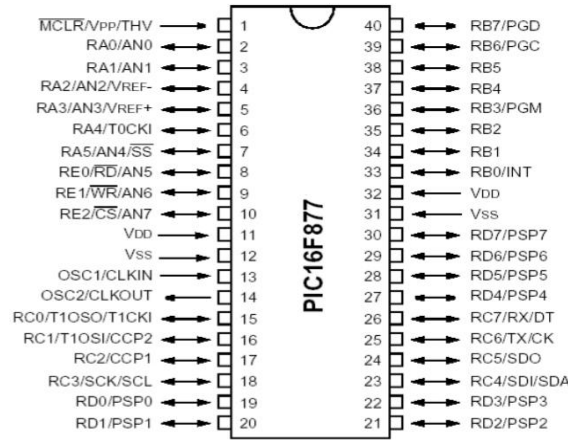


Fig.3 HARDWARE ARCHITECTURE

#### A. PIC MICROCONTROLLER (16F877A)

PIC is a universally useful gadget, which incorporates various parts of a microchip framework on to single chip. They are littler in size, devours less force and reasonable. Different PICs offer various types of recollections. EEPROM, EPROM, Streak and so on are a portion of the recollections of which Blaze is the most as of late created. Innovation that is utilized in pic16F877 is streak innovation, with the goal that information is held in any event, when the force is turned off. Simple Programming and Eradicating are different highlights of PIC 16F877.

#### B. I/O PORTS

A few pins for these I/O ports are multiplexed with a substitute capacity for the fringe includes on the gadget. As a rule, when a fringe is empowered, that pin may not be utilized as a broadly useful I/O pin.

#### C. PORT A AND THE TRIS A REGISTER

PORT A will be a 8-piece wide bi-directional port. The relating information course register is TRIS A. Setting a TRIS A piece (=1) will make the comparing PORT A pin an information, i.e., put the relating yield driver in a Hello impedance mode.

#### D. PORT C AND THE TRIS C REGISTER

PORTC is a 8-piece wide bi-directional port. The comparing information heading register is TRISC. Setting a TRISC bit (=1) will make the comparing PORTC pin an info, i.e., put the relating yield driver in a howdy impedance mode.

*E. PORT D AND TRIS D REGISTERS*

This segment isn't pertinent to the 28-pin gadgets. PORTD is a 8-piece port with Schmitt Trigger information supports.

**IV. MEMORY ORGANIZATION**

There are three memory obstructs in every one of the PIC16F877 MUC's. The program memory and Information Memory have separate transports with the goal that simultaneous access can happen.

*PROGRAM MEMORY ORGANISATION*

The PIC16F877A gadgets have a 13-piece program counter fit for tending to 8K \*14 expressions of Blaze program memory. Getting to an area over the truly actualized address will cause a wraparound. The RESET vector is at 0000h and the interfere with vector is at 0004h.

*DATA MEMORY ORGANISATION*

The data memory is partitioned into multiple banks which contain the General Purpose Registers and the special functions Registers. Bits RP1 (STATUS<6>) and RP0 (STATUS<5>) are the bank selected bits.

RP1:RP0	Banks
00	0
01	1
10	2
11	3

Fig.4 BANK SELECTED BITS

**v. WORKING PRINCIPLE**

This circuit is intended to control the heap. The heap might be engine or some other burden. The heap is turned Here and there through hand-off. The hand-off Here and there is constrained by the pair of exchanging transistors (BC 547). The hand-off is associated in the Q2 transistor authority terminal. A Hand-off is only electromagnetic exchanging gadget which comprises of three pins. They are Normal, Typically close (NC) and Regularly open (NO). The transfer normal pin is associated with supply voltage. The ordinarily open (NO) pin associated with load.

At the point when high heartbeat signal is given to base of the Q1 transistors, the transistor is leading and shorts the gatherer and producer terminal and zero signs is given to base of the Q2 transistor. Along these lines, the hand-off is killed state. At the point when low heartbeat is given to base of transistor Q1 transistor, the transistor is killed.

Presently 12v is given to base of Q2 transistor so the transistor is directing and hand-off is turned ON. Thus the basic terminal and NO terminal of hand-off are shorted. Presently load gets the stock voltage through hand-off.

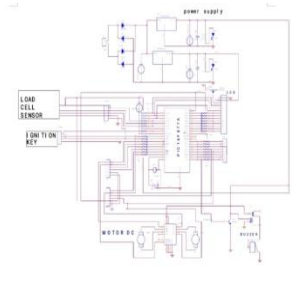


Fig.5 CIRCUIT DIAGRAM

## VI. CIRCUIT DESCRIPTION

### A. LOAD CELL SENSOR

Burden Cells increment exactness and unwavering quality of gauge frameworks in requesting applications, which help to diminish long haul overhauling and running expenses.



Fig.6 LOAD CELL SENSOR

### B. LCD Display

We generally use gadgets made up of Fluid Precious stone Presentations (LCDs) like PCs, advanced watches and furthermore DVD and Compact disc players. They have gotten normal and have taken a goliath jump in the screen business by obviously supplanting the utilization of Cathode Beam Cylinders (CRT).

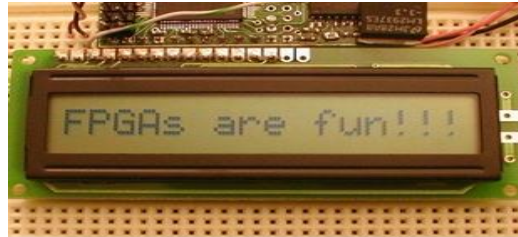


Fig.7 LCD Display

### C. DC Motor

A DC engine is any of a class of rotational electrical machines that changes over direct flow electrical vitality into mechanical vitality. The most widely recognized sorts depend on the powers created by attractive fields. Almost a wide range of DC engines have some inner instrument, either electromechanical or electronic, to intermittently alter the course of current stream in part of the engine.

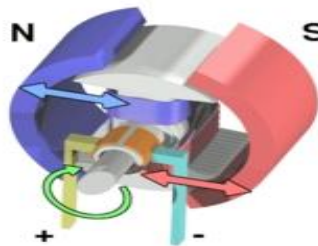


Fig.8 Dc Motor

## VII. CONCLUSION

The exploratory tests indicated that the proposed design and segments were all around picked both as far as accomplishing the minimal effort of the general arrangement and acceptable framework execution. Alongside the essential framework center portrayed right now, plan to expand the fundamental framework usefulness by giving extra modules and administrations, for example, brilliant section control subsystem, human personal conduct standards learning and checking, remote access framework control, arranging and controlling framework arrangement. By actualizing this venture in vehicles, over-burdening can be stayed away from and vehicle conditions can be looked after productively. Fuel of the vehicle can be spared and mishaps can be evaded.

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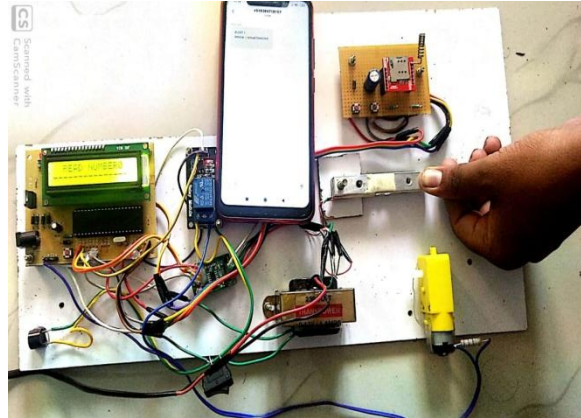


Fig.9 OUTPUT OF THE CONTROLLING VEHICLE OVERLOADING BASED LOAD PRESSURE

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