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AUTOMATIC TYER INFLATION SYSTEM

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Abstract -

The main aim of our project is to develop a "Automatic tyre inflation and deflation system" .This can be placed in all automobiles while long drives and that can be utilized while climbing uphill or down hills. It is very necessary for the every automobile to be cautious while driving through long distances. So we have fabricated this machine to fill the air automatically by using control units. In this project main function is suddenly the air is decreased to the automobile vehicles the sensor signal alerted to the person when the use of air tank to fill the air in the tyre. Then the air pressure is increased to the tyre in the vehicle it is same as the process of indicating the sensor signal through the person when the use of solenoid valve to reduce the excess air in the tyre.

Key Words: Microprocessor, microcontroller, Battery, solenoid valve.

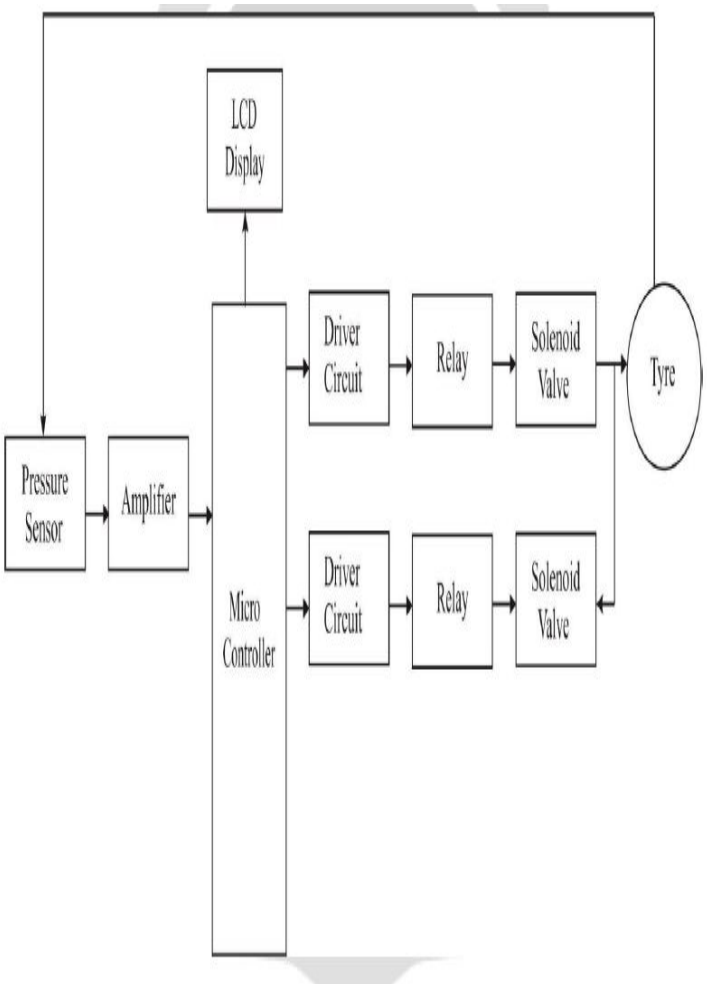
1.INTRODUCTION *(Size 11, Times New roman)*

This project work titled automatic Tyre inflation system deals with the difficulty in driving the vehicles with low and high tyre pressure. The irregular and uneven tyre pressures causes difficulty in driving and even leads to the accidents. This can be implemented on the vehicles which have air braking system .The project automatic tyre inflation system is concentrated in maintaining the tyre pressures and thereby reducing the driving difficulties. This is done by mechanical means and not by using any sensors and other electronics. The air can be inflated into the tyres without stopping the vehicle. The air from the air tank is used for inflating the tyres. The air from the tank is sent to the tyres through a one way valve. The twist made in the air hose is prevented by a joint. The design of the system is very simple and also very economical. Therefore it can be implemented easily in the vehicles. The space requirement for the installation is also very less. Automatic Tyre inflation systems can save Tyre maintenance costs and improve fuel economy by nearly 1 percent, saving 100 gallons of fuel and eliminating 1 metric ton of greenhouse gas emissions per year. Properly inflated Tyres also have fewer punctures and a longer life expectancy.

2. Body of Paper

Tyre Inflation Systems have several benefits for the transportation industry and for the for the vehicle owners. These benefits include, improved vehicle mobility due to improved traction, improved ride quality and cargo safety due to the reduction in vehicle vibrations when the correct Tyre pressure is used, reduction in road maintenance, increased fuel efficiency and a considerable increase in the Tyre life of vehicles. Thus Tyre Inflation System should be used in vehicles for the betterment of automobile industry, vehicle owners, passengers and society asa whole.

Block Diagram



Working

Our project consists of solenoid valve, control unit, pressure sensor and Tyre model. We are using pressure sensor to detect the pressure level in the Tyre. The level of pressure is already programmed in the control unit. When the pressure level is decreased, the sensor gives signal to the control unit. After that the controller unit will open the solenoid valve for filling the air when the required pressure is obtained the control unit will turn OFF the solenoid valve. In case the pressure level will be more than the required level means control unit will switch ON another solenoid valve for air to the atmosphere. When the required pressure is reached the operation will be stopped by the control unit.

3. CONCLUSIONS

The project carried out by us made an impressing task in the field of automobile field. This project will reduce the cost involved in the concern. Project has been designed to perform the entire requirement task at the shortest time available. In this project is used to all the automobile vehicles. Now the project is designed to the ideal condition vehicles. Then our project developed to the next level of running condition vehicle. Because of their vehicles will be a running condition some times to puncturing the tyre. So the alternative sensors are used to their process. Then the air will be filled in the tyre pressure per the seconds. They calculate and the air filling efficiency and to find out the punctured tyres. So easily identified the punctured and to solve the problems. In this process is an advanced technique of our project.

ACKNOWLEDGEMENT

Automatic pressure controlling and self-inflating system would be definitely exploding as new product in the automobile supplier industry as such a product does not currently installed for majority of passenger automobiles, hence the market conditions would be favorable to release such a system.It specially satisfies the user requirement by maintaining ideal Tyre pressure for under inflated Tyres, also improves fuel efficiency and overall safety of automobile is concerned. It assists in monitoring appropriate Tyre pressure constantly, reduces or increases the Tyre pressure according to requirement of the Tyre and help in gaining best mileage and most importantly assures to provide comfortable and safe driving. The installation of such a system in vehicles is a low cost affair so all the passenger vehicle can take the advantage of this very essential system at affordable installation budget.

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