

## **Implementation of tire Pressure Monitoring System with wireless communication**

The project aims at developing a TPMS (Tire Pressure Monitoring System), which displays the tire pressure onto a LCD wirelessly. The proposed system provides the facility of dynamically changing the tire pressure limit setting. Also, the system alerts the driver by honking alarm if the tire pressure is high or low.

Tire Pressure Monitoring Systems (TPMS) are a new standard for improved vehicle safety. These systems are an important and growing safety feature in newer vehicles. The proposed system utilizes advanced integration techniques to provide a TPMS solution that provides real-time tire pressure monitoring and alerts the driver to improperly inflated tires.

The controlling device system of the whole systems is a Microcontroller. The project can be divided into two sub systems; one present in the tire which helps in sending current tire pressure through Zigbee based wireless communication. The other system is present in the car, which receives the current pressure and continuously monitors it. Also, it displays the pressure onto a LCD display. This system is capable of alerting in case of improper inflated tires. The provision of dynamic pressure setting is available in the car system. Microcontroller is loaded with an intelligent program written in embedded 'C' language to perform the task.

### **The objectives of the project include:**

1. Dynamic tire pressure setting.
2. Usage of wireless technology.
3. Continuous monitoring of tire pressure on LCD.
4. Alerts of improper inflated tires.

**The project provides scope for learning the following technologies:**

1. Pressure sensor characteristics.
2. Interfacing pressure sensor to Microcontroller.
3. Zigbee communication technology.
4. Interfacing Zigbee modules to Microcontroller.
5. Embedded 'C' programming.

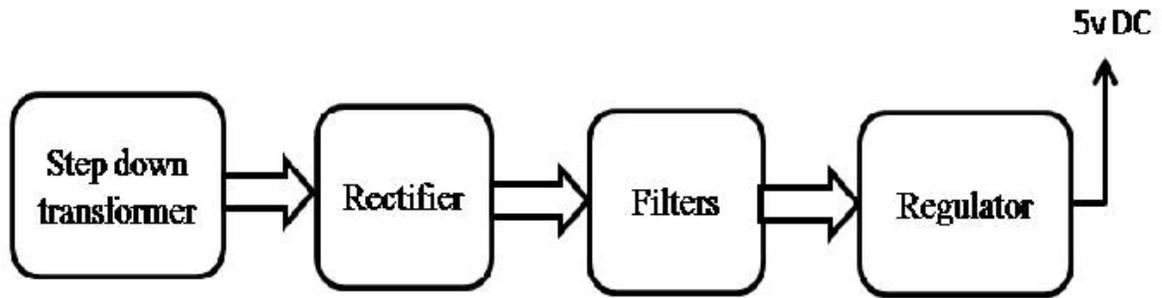
**The major building blocks of this project are:**

1. Regulated Power Supply.
2. Microcontroller
3. Pressure sensor.
4. Potentiometer.
5. Buzzer with driver.
6. Zigbee modules
7. LCD with driver.
8. Crystal oscillator.
9. LED indicators.

**Software's used:**

1. PIC-C compiler for Embedded C programming.
2. PIC kit 2 programmer for dumping code into Micro controller.
3. Express SCH for Circuit design.
4. Proteus for hardware simulation.

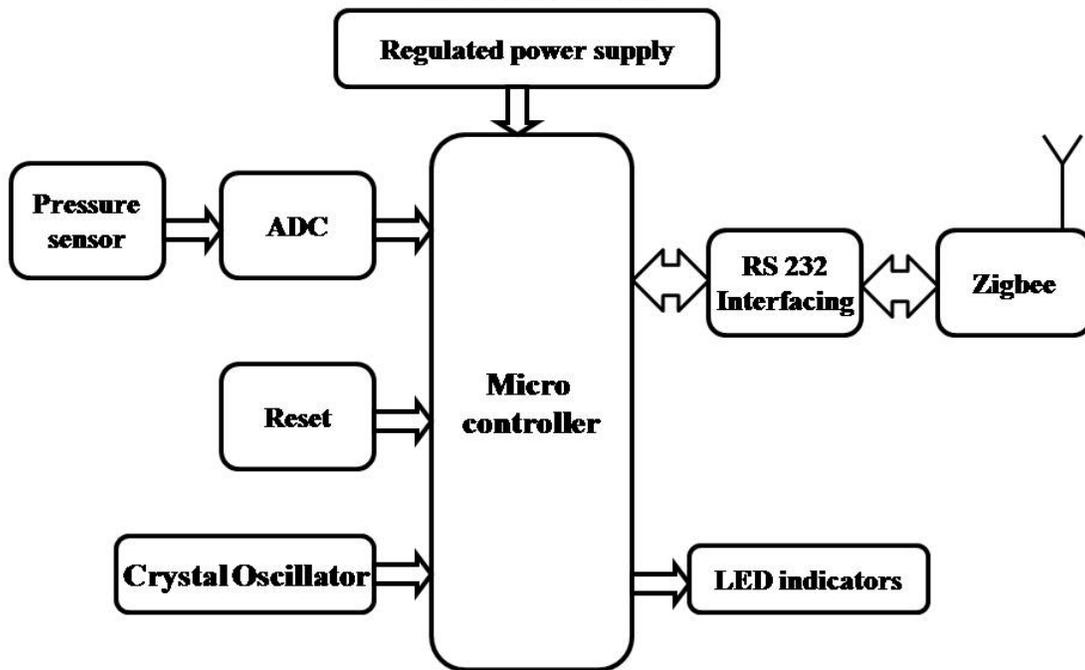
**Regulated power supply:**



**Block Diagram:**

### **Implementation of tire Pressure Monitoring System with wireless communication**

#### **1. Transmitter**



# Implementation of tire Pressure Monitoring System with wireless communication

## 1. Receiver

