

## **Design of On-Board Weighing System for Effective Supply Chain Management**

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### **Abstract**

Today we have stepped into the 21<sup>st</sup> century, and our science and technology should be abreast with the fast growing world. Supply Chain Management (SCM) is now at the centre stage of Manufacturing and service organizations. According to the strategies in markets, supply chains and logistics are naturally being modeled as distributed systems. The economic importance has motivated both private companies and academic researchers to pursue the use of operations research and management service tools to improve the efficiency of Transportation. New developments in sensing technologies have emerged in response to the ever-increasing demand for solutions of specific monitoring applications. So we planned to design such a monitoring device with the help of the sensors and microcontrollers. Today the vehicle consists of several provisions to monitor the condition of the vehicle during travelling and even in static position also. The dash board of the vehicle consists of the odometer, fuel level indicator, speedometer and many other required details. But there is no provision for the weight measuring in the vehicles. This weight of the vehicle is the most important one because each vehicle is designed to withstand certain load. Beyond that limit the vehicle gets failure. So to reduce that and identify the actual weight of the vehicle we designed an on-board weighing system for a highway cargo truck. This system consists if strain gauge fixed at the chassis of the truck and also a microcontroller to control all the electronic operations. The strain gauge produces deflection based on the amount of load in the truck; this causes resistances variation the strain gauge. This variation in resistance is directly proportional to the weight of the cargo in the truck. This is analog signal which is processed by the microcontroller and displayed in the liquid crystal display which is fixed at the dashboard. This is one of the mechatronic based automation system. This paves way to supply the goods to the customers in time effectively.