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A Survey on “Intelligent Weight Measurement System with Remote Display & Paperless Receipt”

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ABSTRACT: Truck scales or weigh bridges are large scales, usually mounted permanently on a concrete foundation, that are used to weigh entire vehicles and their contents the key component that uses a weighbridge in order to make the weigh measurement is load cells or weight sensors.

KEYWORDS: RFID reader and tag, GSM module, PIC Micro Controller Ultrasonic Sensor.

I. INTRODUCTION

In industries and day to day life we require weighing of the various goods, for that many times we need to keep faith on the workers and the people we not know very well. In that some people may cheat us. To reduce the cheating propensity of people and to prevent the loss causing due to faithlessness of people and for easy dealings we are introducing the new system “intelligent weight measurement system for vehicles with remote display and paperless receipt.” In this project, we are using RFID tag to store the information of user which can be used as identity. When the vehicle comes to measure the weight and user enters the tag in RFID reader, it first asks for the password. If user enters the correct password it allows to weight the vehicle otherwise it asks to re-enter the password. When password matches it opens the gate and vehicle can go to measure the weight on weight sensor. Weight sensors send data to server which stores the data and display it on LCD display. Further the server send data to registered number in the RFID tag using GSM module. Thus, there is no need to give paper receipt.

II. EXISTING SYSTEM

Existing system contains the weighing of vehicles, in rare case there is display and the paper receipt is present. Disadvantages: In existing system there is no display and we cannot store the information of owner. And the paper receipt is present. There is no direct connection of owner on the remote place which may lead to cheating with owner.

III. LITERATURE SURVEY

P.Sowmiyaet. al. [1] “automatic goods transportation and obstacle detection system using RFID and GSM” an automatic vehicle needs to allow the vehicle to reach the correct destination using tracking and obstacle detection schemes. This paper deals with automatic vehicle navigation and obstacle detection. Vehicle navigation is done by RFID and obstacle detection is done using ultrasonic sensor. Once the obstacles are detected the message is send to the operator who navigates the vehicle through GSM. By using low cost PIC microcontroller the entire system is controlled .The system is mainly used for industrial goods transportation. This project easily solves the issues in automatic vehicle used in industries to transfer the goods from one place to another place. The testing results are very victorious and can be simply implementing in real time application. This can be unlimited further using Global Positioning System (GPS) and neural networks idea. On the whole, this scheme Proves to be very effective in unmanned transportation for industrial applications and this system is very cost effective because of using low cost PIC microcontroller.



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SawantSupriya C et al. [2] “An Intelligent Vehicle Control and Monitoring Using Arm” Unifying the Global Positioning system technology this article designs and realizes one kind of embedded wireless system named intelligent vehicle control for critical remote location application using ARM 7 microcontroller from the hardware and software. In terms of the hardware completed the design and connection of ARM embedded system, GPS module, obstacle testing module, different parameter monitoring sensor modules and the GSM module. The system can achieve the purpose of long distance real time monitoring and control of vehicle. The executive results of laboratory tests show that the system fulfils real time control and functional parameter monitoring of a vehicle. An effective solution is provided to develop the intelligent vehicle which will monitor various parameters of vehicle in-between constant time period and will send this data to the base unit is explained in this paper. By using hardware platform who's Core is ARM7, GPS & GSM module. The designed system could finish the function of communicating with the base station via GPS, obstacle Avoidance testing and control of various parameters. The whole Control system has the advantage of small volume and high reliability. Future scope of that is to control the accidents and positioning the accidental vehicle.

M.Ragulet al. [3] “Autonomous Vehicle Transportation Using Wireless Technology” This paper illustrates the use of a vehicle in several industries and is capable of reducing extra strenuous and/or time consuming activities of humans. The main concentration of this work was on vehicle navigation, tracking, obstacle detection, weight overload, battery power measuring and also be able to locate the respective service station goods. Vehicle navigation employs RFID technology. The RFID reader is installed in the vehicle and reads the tags which are placed along its route. Whenever a vehicle reaches a service station it sends a message to the workers. Upon receiving a message, the workers can collect the respective service station goods using RFID. If the wrong goods are taken out of the vehicle, the buzzer gets activated. The obstacle detection can be done by ultrasonic sensors. If any obstacle in the route is detected, the message is sent to the control station of the industry using the GSM module. The load cell is used to indicate the weight overload to the workers. Two batteries have been together utilized to measure the required power by this developed vehicle. As soon as Battery1 becomes dry, the battery2 is made the main source of power and a message is sent to the control station through GSM. The control station having a GSM module receives the message and the result will be displayed in hyper terminal window on the PC (personal computer). The vehicle transportation uses PIC microcontroller, sensors and wireless technology. Autonomous vehicle transportation and delivery of goods in industries are effectively performed withRFID technology. The vehicle can do the accurate identification of obstacle in a path with the help of theultrasonic sensor. It easily measures the load in the vehicle with the use of weight sensor. The battery conditionis successfully measured by a voltage divider. Finally vehicle transportation systems are linked to a controlstation through messages by using a GSM modem. This unmanned vehicle system is capable of real timeoperaion and take goods from one service station to another service station. The results were experimentallyverified. A future enhancement of the work involves the usage of cameras to identify the obstacle and takeappropriate measures to tackle it.

IV. PROPOSED SYSTEM

The proposed system contains the RFID tag which stores the information of owner, RFID reader reads the information stored. System asks for password if we enter correct password the gate gets opened. After that weight sensor measures the weight and sends data to server which stores the data and displays it on LCD. Server also sends the data to owner directly which reduces the chances of losses and the process is done smartly.

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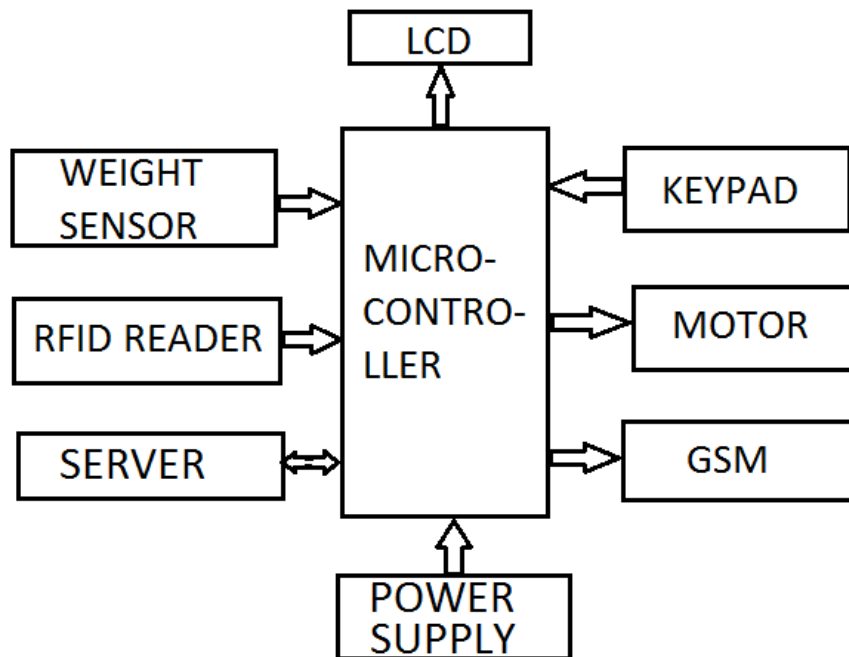


Fig 1: block diagram of proposed system

(a) MICROCONTROLLER

A microcontroller is a small computer on a single integrated circuit containing a processor core, memory, and programmable input/output peripherals. Program memory in the in the form of ferroelectric RAM, NOR flash or OTP ROM is also often included on chip, as well as typically small amount of RAM. Microcontrollers are designed for embedded application, In contrast to microprocessor used in personal computers or other general purpose applications consisting of various discrete chips. We use pic18f4520 microcontroller.

(b) LIQUID CRYSTAL DISPLAY:

A liquid-crystal display (LCD) is a flat panel display, electronic visual display, or video display that uses the light modulating properties of liquid crystals. Liquid crystals do not emit light directly. The LCD is used in a wide range of applications including computer monitors, televisions, instrument, aircraft cockpit displays, and signage. The power consumption is very low while compare with other devices.

(c) RFID:

RFID is used for the purposes of automatically identifying the objects or a person. RFID contains RFID tag and reader. The tags contain by electronic means stored information. Some tags are motorized by electromagnetic instruction from attractive fields created near the reader. Some types gather power from the interrogate telephone system waves and act as a reactive transponder. Additional types have a limited power resource such as a battery and may operate at hundreds of meters from the reader. Each tag has a single code, Unlike a barcode, the tag does not necessarily need to be within line of sight of the person who reads, and might be embedded in the track article. RFID tags contain at least two parts: integrated circuits for storing and processing information modulating and demodulating a radio frequency (RF) signal, collecting DC power from the incident booklover indication, and other particular function; and an antenna for getting and transmit the sign. The tag information is store in a non-volatile remembrance. The RFID tag includes moreover a chip-wired reason or a automatic or programmable data CPU for dispensation the broadcast and sensor information correspondingly.



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(d) **WEIGHT SENSOR:**

Weight sensor measures the weight overload in many applications, Such as electronic scale, price computing scale and digital scale. This is an analog device and consumes 5v power supply. It is transducer technique that converts mechanical force into an electrical signal. In this project, 500 gram capacity type of weight sensor is used to measure the weight capacity of the vehicle and weight sensor is connected to a microcontroller analog pin.

(e) **GSM:**

GSM module is used to communicate with mobile. We send the message from processor to mobile by using this GSM module. It can fit almost all the space requirement in your application, such as Smart phone, PDA phone and other mobile device. The physical interface to the mobile application is made through a 60 pins board-to-board connector, which provides all hardware interfaces between the module and customers' boards except the RF antenna interface. Extended TCP/IP AT commands are developed for customers to use the TCP/IP protocol easily, which is very useful for those data transfer applications.

(f) **KEYPAD:**

Keypads are often used as primary input device for microcontrollers. The keypad actually consists of no of switches, connected in a row/column arrangement. We require the keypad for entering the password.

V. CONCLUSION

In today's world, it is very dangerous to put faith on anyone and people require the easiness and smartness in every work. Considering the area of weighing the goods in vehicles; in transportation industries or for farmers also for their goods, they need to weight it and for that they need to depend on labors. Because of this dependency many times they have to suffer the losses. From entire study up to this, we can conclude that we will make and build such system which will overcome the drawbacks of present system and can give the extra features like paperless receipt.

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