DESIGN OF A HYBRIDWIRELESS TERMINAL SYSTEM IN CHATTEL TRNSPORTATION

Sharifkhan Pattan[1], Sk.Lal John Basha[2], L. Srinivas Reddy[3]

[1] M.Tech Scholar (ES), [2] Assistant Professor (ES), [3] Assistant Professor (DECS)
Nalanda Institute of Engg & Tech. (NIET), Siddhartha Nagar, Guntur, (India)

ABSTRACT

This paper mainly deals with the secured and safety transport of the good to the destination without miss match. This study proposes an idea of solving problems arising in logistics management, with the aid ofwireless communication technologies like RFID, GSM and GPS. This paper also includes the modules of goodsdelivery status, vehicle location asking, overloading of goods, interlocking system and finding out themisplaced goods. The integrated system consists of RFID and GPS technology for goods count and vehicle tracking. Overloading of goods is identified as the weight of the good will identified from tags. If the goods are misplaced, thesecure system will indicate the authorized base station and will not allow the vehicle to move. If the wronggoods are taken out from the vehicle the buzzer will be ON and the message will be intimated to the concernedperson through GSM.

Keywords: GPS, GSM, Keypad, Microcontroller, RFID

I. INTRODUCTION

In the present world as the population was increases the safety and security was increased, needsof human being alsoincreased. It is mandatory to deliver the goods to perfect destination without miss mating of goods. In this paper we are going to transfer the goods to the destination with help of the technology like GSM, GPS, and RFID.

The system will work in real time with accuracy as we are going to use the technology which will gives the accurate values. In the present generation every item will have its own id for reading its information by basing this identity we are going to send them to exact destination.

The system will check the goods delivery location with the tag id and the location entered from the keypad. If he delivered the wrong goods then the buzzer will rang and the information send to the higher authority with the help of the GSM and GPS and the vehicle will locked at that location.

GPS is placed in the vehicle for vehicle information at any time. If authorised person wants to know information then he can send a message to GSM which is there in Vehicle then by reading the values from the GPS he can find the location of vehicle through GSM.

II. HARDWARE DESCRIPTION

2.1 LPC2148

The controller which we are using is ARM 7 LPC 2148. The main advantage of this controller is, it has many in-built applications. The feature of LPC 2148 has many essential features. They are

1)   64 pins IC with Quadra-pack.

2)   It does 32-bit operations.

3)   It has 512 kb flash memory.

4)   It has 8kb SRAM.

5)   It requires 1ms to erase 256 bytes of data and 400ms to erase complete memory.

6)   In-built ADC with 14-channels and bit resolution is 10-bit.

7)   Only one DAC with 10-bit resolution.

8)   It has two timers/external event counters.

9)   In-built RTC with clock frequency of 32 kHz.

10)   In-built USB 2.0.

11)   In-built I2C.

12)   In-built SPI and SSP.

2.2 GPS Device

Here GPS receiver is the crucial one, where we receive the data about the latitude and longitude values. By using that we can also read the data about the speed, the vehicle is moving with. The module consists of 20-channels which are used to receive the data from the satellite. The latitude and longitude values changes with for every 5-10mts, as they are sufficient to provide the change in values. Whenever we required the vehicle location we can get it from GPS receiver.

The RX pin is used to receive data/information from the controller and the TX pin is used to transmit the information from GPS to the Micro Controller Unit.

2.3 GSM Module

The GSM module by using this module we are tracking the vehicle by sending predefined text in the system which is fixed with vehicle. Otherwise whenever we notified that if delivery boy delivered a wrong good to the wrong destination we can get a massage automatically which is set in programming of controller and track the current location latitude and longitude values sending to the authorised persons.

2.4 RFID Module

TheRadio-frequency identification and detection reader is a device which is used to communicate with the RFID tags by transmitting and receiving signals. These signals use radio waves for wireless communication with RFID tag is applied to products. The identification is based through a unique serial number. In this project we are using to identifying the productdetails, based on those information we can identify the good and we can deliver them to successive destination. If a wrong good is picked for wrong destination that can identify the good by the tag which is attached to the good.

2.5 LCD DISPLAY

Here LCD display is the output device used to give information. They can display the data of 32 characters. In our project it is used to display the location co-ordinates at that particular location and the current status of the programing on LCD. Here LCD is connected to the LPC2148. The display is provided with 8-bit data lines for the purpose of parallel data transfer.

2.6 Keypad

Here we are going to use phone keypad with 4 rows and 3 columns. The keypad is used to give the input to the system like giving the destination information and verification of authorised person to deliver the goods by

entering the specified password which is predefined in the controller programming. If the entered wrong password then he is not authorised to deliver the goods.
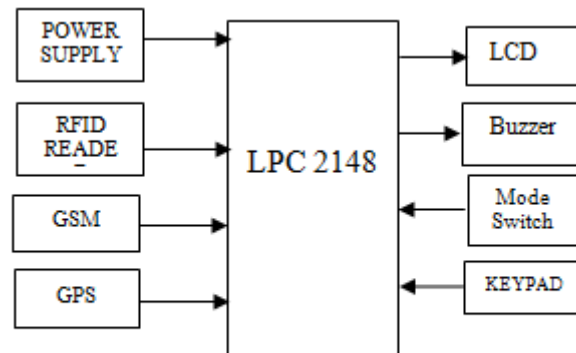
2.7 Block Diagram

Fig: Block Diagram

III. SYSTEM DESCRIPTION

In this project we are going to transfer the goods to destination with safe and security. It requires a password for opening the vehicle door for goods uploading and unloading. When uploading if the person enters a write password then only he is access to upload the goods in carriage. It is predefined that each and every good consists of RFID tag and with RFID tag we can attach the destination location that where to deliver the good.

With the help of keypad we are going to select the destination and we can add the goods to that location. After uploading of goodsthe mode switch is on and the vehicle get started and the information that the vehicle is going to deliver the goods is informed to authority person with the GSM module. When the vehicle get started the GPS module get activated and it trace the location of vehicle, whenever we required the vehicle location we can get location of the vehicle with a simple message to GSM module which is there in the vehicle. In the delivery point, first he need to switch off the mode switch and then the person is informed to provide the password from keypad if the password matches then only he can authorised to deliver the goods. If he entered a write password he will access for further procedure. Then he need to enter the destination from keypad, after entering the destination the reader will get activated and he need to read the tags if he is going to pick a wrong tag then the reader will detects tag id and the buzzer will rang, the same information will transfer to particular authorised persons thorough the GSM modem placed in the vehicle with including the location of the vehicle which is tacked from the GPS receiver which is placed in the same vehicle and the buzzer will get activated. In another way if the vehicle is get stuck in any location we can track that vehicle by sending a simple message to the GSM modem which is already pre-defined in the controller programming then the GPS receiver get activated and the controller reads the coordinate values like longitude and latitude and the same information will send to the same number where the message was received.

IV. WORKING PROCEDURE

5.1 Loading the Goods

In loading the goods it is predefined that the destination of each and every good. As per the destination of goods we are going to add the goods to the according their destinations. First we need to select the destination from keypad and we are going add the good to that destination by reading the tag. Adding of goods completion will be indicated by pressing the ash ('#") key in keypad. After adding the goods, put the mode switch ON.

5.2 Delivering the Goods

Once the goods are loaded in to the vehicle then the vehicle gets started and the GPS and GSM get activated.

In middle of vehicle navigation if we want to track vehicle position it can be done by sending a predefined message to the GSM module which is placed in the vehicle board, when it receives the message then it will check for the location from the GPS receiver, when the GPS receiver receives the coordinates then that information is send to the mobile number from which we got the message. When it reaches the delivery point, first we need to switch off the mode switch and then the system will ask automatically regarding pass key. If he entered the wright password then only he is authorised to deliver the goods. Once he entered the wright password he will ask for the station number. If he entered the station number then it asks for the tag information. If he picks a write good to delivery then it proceeds further. If he picked a wrong good to deliver it intimates him by alarm and the same information will send to the authority person with according to good details and the location of the vehicle. So the person gets alerted for wrong delivery.

VI. RESULT

Fig: Welcome Note

Here we are going read the tag information of goods while loading of the goods into the vehicle. The reading of cards is done with simultaneous reading of input from keypad which is the destination number.

The information is saved with according to the station number. It is going to be useful when we are going to deliver the goods at customer location.

Fig: Reading the Goods Details

After reaching the destination, reading the good information with the help of tags.

Fig: Delivery Note of Foods

V. CONCLUSION AND FUTURE SCOPE

This paper describes the goods delivery to the destination without mismatch of goods. Here we are going to concentrate on each and every object like good details and destination details. Every time we are going to compare the destination and goods so there is no possibility of wrong delivery.

Here the most advantage of this project is tracking, as the goods are plays a main role regarding customer we need to protect them.If the vehicle is missed somewhere else we can easily get its location through message.

In feature we can implement this paper further by placing an alcohol sensor to detect the drink and drive cases. If there are any goods that take care about temperature for that good to monitor we can place the temperature sensor and we can control the temperature with additional devices like air coolers.

REFERENCES

[1]   Cai-congwu, Xiu-wan, ceien', H. liz, Z. Zhong and T. Wu'jying-chun, 2004. Design and development of farm vehicle monitoring and intelligent dispatching system. Proceedings of the Third international Conference onmachine learning and Cyberneucs,Shanghab, 26-29 August, pp: 352-355.

[2]   Dan Liu, Z., Liang, Y. Li and H. Yang, 2010. Research and design of a high performance GPS vehicle monitoring system. Proceedings of the International Conference on Future Information Technology and Management Engineering, (FITME' 2010), pp:59-61.

[3]   Danyu, Z. and G.A.O. Hongfeng, 2007. Design of a communication service system for vehicle monitoring. Proceedings of the IEEE International Conference on Automation and Logistics, August18-21, Jinan, China, pp: 894-897.

[4]   Huiping, L., Z. Yi, T. Iu and W. Chunlin, 2008. Design of a hybrid RFID/GPS-based terminal system in vehicular communications. This work was Supported by the High-Tech Research and DevelopmentProgram of Henna University, pp: 1-4.

[5]   He .W., E. Tan, E.W. Lee, T.Y. Li, 2009. A solution for integrated track and Trace in Supply Chain Based on Rfid and Gps. International Conference of ETFA, pp: 1-6.

[6]   Ming, Y., W. Xuefeng and Z. Renyi, 2008. Standardization and Integration of Information System in International Container Logistics, 4[th]International Conference of WICOM, pp: 1-4.

[7]   Prasanna, K.R. and M. Hemalatha, 2011. RFID GSM and GPS based logistics vehicle load balancing and tracking mechanism. Proceedings of the 2011 International Conference on Communication Technology and System Design, (CTSD' 2011), pp:746-749.

[8]   Xilong, Q. and L. Yingchun, 2009. The LBS system based on BREW platform. Proceedings of the 2009 International Conference on Environmental Science and Information Application Technology, (ESIAT'2009).

[9]   Ying WEI, 2011. Logistic Unified Information System Warehousing Module Design Based on Internet of Things International Conference of CommunicationSoftware Network, pp: 263-266.

[10] Chengxin, Y., C. Mingwen, C. Mingzhili and S.L. Shaolin, 2007. Study and Prospect on Integrated Multi-technology in Logistics, Proceedings of the IEEEInternational Conference on Automation andLogisticsAugust 18-21, Jinan, China, pp: 871-875.

AUTHOR DETAILS

	SHARIF KHAN PATTAN,pursuing M.Tech (ES) from Nalanda Institute of Engineering & Technology(NIET), Siddhartha Nagar, Kantepudi (v), Sattenapalli, Guntur-522438.
	SK. LAL JOHN BASHA,working as Assistant Professor (ES) from Nalanda Institute of Engineering & Technology(NIET), Siddhartha Nagar, Kantepudi (v), Sattenapalli, Guntur-522438.
	L. SRINIVAS REDDY, working as Assistant Professor (DECS) from Nalanda Institute of Engineering & Technology(NIET), Siddhartha Nagar, Kantepudi (v), Sattenapalli, Guntur-522438.