International Journal of Multidisciplinary Engineering in Current Research - IJMEC
Volume 8, Issue 7, July-2023, http://ijmec.com/, ISSN: 2456-4265

LOGISTICS TRACKING MANAGEMENT SYSTEM BASED ON WIRELESS SENSOR NETWORK

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Abstract : With the development of science and technology, the application of information technology in the logistics industry is becoming more mature. At present, in order to improve the safety, punctuality and speediness of cargo transportation, people have higher requirements on cargo transportation. Therefore, the application of wireless sensor network in logistics tracking management system promotes the development of freight transportation, strengthens the smooth progress of freight transportation, and reduces the cost of freight transportation. In this project, the hardware and software design of logistics tracking management system based on wireless sensor networks to explore the tracking management of goods in wireless sensor networks.

Keywords: Arduino micro-controller, Arduino IDE, Keypad, LCD, GSM Module.

1. INTRODUCTION

In the present world everyone knows the importance of security. As the technology improving we are trying to implement these kind of techniques to protect exam papers in an educational institutions. There are different ways to provide security here we are providing security by assigning password.

In the present project we are going to assign a password. Whenever an authorized person wants to OPEN the DOOR of the van he has to enter the password then only door will be opened. If he entered the wrong password then automatically send the SMS to security authorities.

Embedded Systems:

An embedded structure is a mix of programming and mechanical assembly to play out a gave errand. A bit of the fundamental contraptions used in embedded things are Microprocessors and Microcontrollers. Microchips are commonly suggested as all around steady processors as they essentially see the information sources, process it and give the yield. Then again, a microcontroller sees the data as obligations correspondingly as controls it, interfaces the data with various contraptions, controls the data and in that capacity finally gives the result.

DOI: https://doi-ds.org/doilink/07.2023-77785814

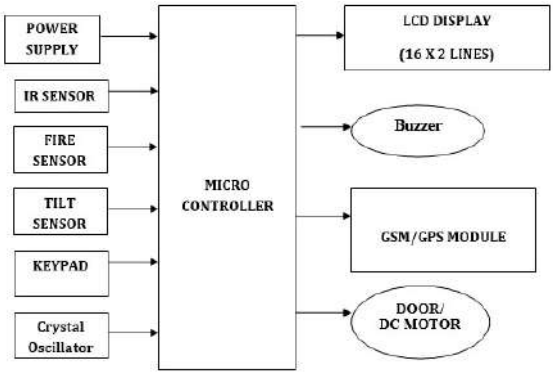
2. PROJECT INTRODUCTIO

2.1 Aim: The main aim of this project is to protect and control goods inside the logistics vans.

2.2 PROPOSED METHOD:

With the development of science and technology, the application of information technology in the logistics industry is becoming more mature. At present, in order to improve the safety, punctuality and speediness of cargo transportation, people have higher requirements on cargo transportation. Therefore, the application of wireless sensor network in logistics tracking management system promotes the development of freight transportation, strengthens the smooth progress of freight transportation, and reduces the cost of freight transportation. In this project, the hardware and software design of logistics tracking management system based on wireless sensor networks to explore the tracking management of goods in wireless sensor networks.

BLOCK DIAGRAM



Hardware:

Arduino, GSM Module, RFID Module, LCD, Buzzer.

Software:

Arduino Software

3.ARDUINO

Overview:

ISSN: 2456-4265

DOI: https://doi-ds.org/doilink/07.2023-77785814

The Arduino Uno is a microcontroller board subject to the ATmega328 (datasheet). It has 14 motorized data/yield pins (of which 6 can be utilized as PWM yields), 6 essential wellsprings of information, a 16 MHz artistic resonator, a USB alliance, a power jack, an ICSP header, and a reset catch. It contains everything expected to help the microcontroller; just interface it to a PC with a USB association or power it with an AC-to-DC connector or battery to begin.

The Uno contrasts from every first board in that it doesn't utilize the FTDI USB-to-back to back driver chip. Or on the other hand possibly, it joins the Atmega16U2 (Atmega8U2 up to change R2) adjusted as a USB-to-successive converter.

The Uno board has a resistor dismantling the 8U2 HWB line to ground, making it less mind boggling to put into DFU mode.

The board has the going with new highlights:

pinout: included SDA and SCL pins that are close to the AREF stick and two other new sticks set close to the RESET stick, the IOREF that engage the shields to adapt to the voltage gave from the board. In future, shields will be extraordinary with both the board that uses the AVR, which works with 5V and with the Arduino Due that works with 3.3V. The resulting one is a not related stick, that is set something aside for future purposes.

- Stronger RESET circuit.
- Atmega 16U2 uproot the 8U2.

"Uno" suggests one in Italian and is named to check the top tier section of Arduino 1.0. The Uno and structure 1.0 will be the reference changes of Arduino, pushing ahead. The Uno is the most recent in a development of USB Arduino sheets, and the reference model for the Arduino compose; for an examination with past structures, see the archive of Arduino sheets.

4. GSM

(GLOBAL SYSTEM FOR MOBILE COMMUNICATION)

GSM (GLOBAL SYSTEM FOR MOBILE COMMUNICATION) is the most eminent standard for adaptable correspondence structures on the planet. The GSM Association, its driving industry exchange relationship of telephone transporters and producers, assesses that 80% of the general versatile market utilizes the standard. GSM is utilized by over 1.5 billion individuals crosswise over in excess of 212 nations and spaces. This certainty surmises that endorsers can utilize their telephones all through the world, empowered by overall winding techniques between adaptable structure executives. GSM contrasts from its forerunner types of progress in that both hailing and talk channels are electronic, and thusly GSM is viewed as a subsequent age (2G) remote structure. This additionally engages the wide-spread execution of information correspondence applications into the framework.

The GSM standard has been a bit of breathing space to the two purchasers, who may profit by the capacity to wind and switch bearers without supplanting telephones, what's more to deal with officials, who can pick hardware from different GSM gear vendors. GSM besides started straightforwardness execution of the short message association (SMS), in like way called substance instructing, which has since been fortified on other cell phone leads as well. The standard joins a general crisis phone number section (112).

Logically present changes of the standard were in reverse extraordinary with the first GSM framework. For instance, Release '97 of the standard included gathering information limits by methods for General Packet Radio Service

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(GPRS). Discharge '99 showed higher speed information transmission utilizing Enhanced Data Rates for GSM Evolution (EDGE).

5. LCD

Introduction

A liquid crystal Display (LCD) is a slight, level electronic visual demonstrate that uses the light adjusting properties of liquid valuable stones (LCs). LCs does not exude light quick.

They are used in a wide level of jobs including: PC screens, TV, instrument loads up, flying machine cockpit shows up, signal, etc. They are standard in buyer devices, for instance, video players, gaming contraptions, tickers, watches, number crunchers, and telephones. LCDs have cleared cathode segment tube (CRT) appears in different applications. They are reliably tirelessly limited, lightweight, pleasing, ceaselessly reasonable, powerfully strong, and dynamically clear on the eyes. They are open in a more far reaching level of screen sizes than CRT and plasma appears, and since they don't use phosphors, they can't suffer picture exhaust in.

LCDs are increasingly noticeable significance supportive and offer more secure exchange than CRTs. Its low electrical power usage attracts it to be used in battery-filled electronic equipment. It is an electronically-exchanged optical contraption made up of any number of pixels heaped up with liquid significant stones and appeared before a light source (setting enlightenment) or reflector to pass on pictures in camouflaging or monochrome. The most reliable disclosure inducing the improvement of LCD headway, the presentation of liquid gainful stones, dates from 1888. By 2008, everything considered musings of TVs with LCD screens had beated the closeout of CRT units.

Each pixel of a LCD reliably contains a layer of particles balanced between two direct anodes, and two polarizing channels the tomahawks of transmission of which are (in the greater part of the cases) opposite to one another. With no certifiable fluid basic stone between the polarizing channels, light sticking to the essential system would be stayed away from constantly (crossed) polarizer. In a monster bit of the cases the fluid huge stone has twofold refraction

6. Arduino software

The Arduino Uno can be programmed with the Arduino software. Select "Arduino Uno from the Tools > Board menu (according to the microcontroller on your board).For details, see the reference and tutorials. The ATmega328 on the Arduino Uno comes preburned with a boot loader that allows you to upload new code to it without the use of an external hardware programmer. It communicates using the original STK500 protocol (reference, C header files).We can also bypass the boot loader and programs the microcontroller through the ICSP (In-Circuit Serial Programming) header; see these instructions for details. The ATmega16U2 (or 8U2 in the rev1 and rev2 boards) firmware source code is available. The ATmega16U2/8U2 is loaded with a DFU boot loader, which can be activated by:

- On Rev1 boards: connecting the solder jumper on the back of the board (near the map of Italy) and then resetting the 8U2.
- On Rev2 or later boards: there is a resistor that pulling the 8U2/16U2 HWB line to ground, making it easier to put into DFU mode.

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The Arduino Uno has a number of facilities for communicating with a computer, another Arduino, or other microcontrollers. The ATmega328 provides UART TTL (5V) serial communication, which is available on digital pins 0 (RX) and 1 (TX). An ATmega16U2 on the board channels this serial communication over USB and appears as a virtual com port to software on the computer. The '16U2 firmware uses the standard USB COM drivers, and no external driver is needed. However, on Windows, an .information file is required. The Arduino software includes a serial monitor which allows simple textual data to be sent to and from the Arduino board. The RX and TX LEDs on the board will flash when data is being transmitted via the USB-to-serial chip and USB connection to the computer (but not for serial communication on pins 0 and 1). A Software Serial library allows for serial communication on any of the Uno's digital pins. The ATmega328 also supports I2C (TWI) and SPI communication. The Arduino software includes aWire library to simplify use of the I2C bus

Applications:

- ✓ Banks, ATMs etc.
- ✓ Therapeutic Applications and so forth.

Advantages

- ✓ It is progressively secure and compelling innovation.
- ✓ Due to the usage of this innovation we doesn't require guardian.

7. Conclusion

We conclude that main objective of this project is to develop an embedded system to design the password based access control for door locking system.

This project is useful to provide security in our day-to-day life. Every one wants to be as much as secure as to be possible. An access control systems forms a vital link in a security chain

8. FUTURE SCOPE

For the further development of this project we can use IoT applications to continuously monitoring the parameters from anywhere in the world.

REFERENCES

1. M. K. Shafin, K. L. Kabir, N. Hasan, “Development of an RFID based access control system in the context of Bangladesh”, IEEE Sponsored 2nd International Conference on Innovations in Information Embedded and Communication Systems, pp. 1-5, 2015.
2. H. Hassan, R. A. Bakar, A. T. F. Mokhtar, “Face recognition based on auto switching magnetic door lock system using micro-controller”, International Conference on System Engineering and Technology, pp. 1- 6, 2012.

DOI: https://doi-ds.org/doilink/07.2023-77785814

3. Madhusudhan M. and Shankaraiah,"Implementation of automated door unlocking and security system", International Journal of Computer Applications, pp. 5-8, 2015.
4. Arundhuti Chowdhury, "Revolution in authentication process by using biometrics", International Conference on Recent Trends in Information Systems, pp. 36-41, 2011.
5. R. Jagdale, S. Koli, S. Kadam and S. Gurav, "Review on intelligent locker system based on cryptography, wireless & embedded technology", International Journal of Technical Research and Applications, pp. 75-77, March 2016.
6. H. Chen, J. Liu and C. F.Yang, "Design of intelligent locks based on the triple KeeLoq algorithm,"Advances in Mechanical Engineering, vol. 8, no. 4, pp. 1-7, 2016.
7. Jason Johnson and Christopher Dow, "Intelligent door lock system with encryption", US Patent Application Publication Johnson et al., pp. 1-92, June 2016.
8. Lodhi, Amairullah Khan, M. S. S. Rukmini, Syed Abdulsattar, and Shaikh Zeba Tabassum. "Performance improvement in wireless sensor networks by removing the packet drop from the node buffer." Materials Today: Proceedings 26 (2020): 2226-2230.
9. Lodhi, Amairullah Khan, and Syed Abdul Sattar. "Cluster head selection by the optimized ability to restrict packet drop in wireless sensor networks." In Soft Computing in Data Analytics, pp. 453-461. Springer, Singapore, 2019.
10. Lodhi, Amairullah K., M. Santhi S. Rukmini, and Syed Abdulsattar. "Energy-efficient routing protocol for network life enhancement in wireless sensor networks." Recent Advances in Computer Science and Communications (Formerly: Recent Patents on Computer Science) 14, no. 3 (2021): 864-873.
11. Ketki Ram Bhakre, R. K. Krishna "Distance Distribution Approach of Minimizing energy Consumption in Grid W3ireless sensor network" in the International Journal of Engineering and Advanced Technology (IJEAT), Volume1, Issue5, June 2011.
12. Lodhi, Amairullah Khan, M. S. S. Rukmini, and Syed Abdulsattar. "Energy-efficient routing protocol based on mobile sink node in wireless sensor networks." International Journal of Innovative Technology and Exploring Engineering (IJITEE) ISSN (2019): 2278-3075.
13. R.K. Krishna, B. Seetha Ramanjaneyulu "A Gorilla Optimization based Clustering for Improving Lifetime of Wireless Sensor Networks" published in International Journal of Recent Technology and Engineering (IJRTE), ISSN 2277-3878, Volume 7, Issue 5S4, February 2019, pp.180-

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DOI: https://doi-ds.org/doilink/07.2023-77785814

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DOI: https://doi-ds.org/doilink/07.2023-77785814