Lost Adolescent Tracking System Using RFID Water Resistance Tag

[1]Dr.D.Kalaiselvi, [2]Ahilan.E.R, [2]Rajkumar.R, [2]Dheepak.NA

[1]Assistant Professor, Department of Computer Science and Engineering, Jai Shriram Engineering College, Tirupur,

Tamil Nadu, India

[2]Student, Department of Computer Science and Engineering, Jai Shriram Engineering College, Tirupur,

Tamil Nadu, India

ABSTRACT: In many schools there is a great issue about the missing children both with in campus and outside the campus . This paper proposes and implements a Tracking system for the missing child using Radio frequency identification device laundry tag, Radio frequency identification device antenna , ARM processor and GSM. This system makes the job easier to find the targeted missing child. Each child is embedded with laundry tag in each of their uniform. Radio frequency identification device antenna is placed in the school van and the school campus separately which is connected to the ARM processor and GSM. Therefore the present and missing child is monitored in their respective boarding time in the van and entering time in to the campus. So immediately an alert message will be sent both to the parents and the school management in case of child missing than their usual time. So we can monitor the child presence and absence automatically by the RFID laundry tag.

KEYWORDS: RFID antenna, RFID laundry tag, .

I. INTRODUCTION

RFID long range reader tracks vehicles, trolleys, pallets, or any assets. Organization like factories, offices, housing complex needs to monitor entry and exits of their assets. The reader is mounted on the pole at entry/ exit gates. Assets are fixed with RFID tags like tags are pasted to vehicles on the windscreen. Special tags are used on metals. When these assets pass through the entry/ exit gates the are detected by the RFID long range reader. The tagsThese long range readers are used to detect authorized vehicles at entry of housing complexes to unlock the boom barrier toll, parking.They are suitable for asset tracking, laptop tracking, trolley tracking and bullock cart tracking. Other

RFID:

Specification of the RFID reader is the One of the reader device its reading distance is the .The 6-7m To read the RFID tag.

A.RFID TAG:

RFID tag is different types for an example barcodes, Embeddable RFID tag, TAGSYS Lintrak
 C UHF RFID tag, laundry RFID ,mini tag,and then Etc..,
applications are monitoring work in progress (WIP), warehouse, inventory etc.

B..HOST COMPUTER:

Host computer is the get the information from the readers. The asset data's are stored in the oracle . infront page to create the visual basices. Back end is used for the oracle.

II.LAUNDRY RFID TAG

This button-sized RFID laundry tag is designed for long range laundry garment tracking. It is with four holes in the middle for easy attachment to garment. The small, rugged RFID laundry tag is made of special material to basically meet all requiremterms of heat, pressure and chemical resistance in the applications of contactless tracking of garments in the textile rental and dry cleaning.

A. **Specification:**

1. Type: Contactless R/W

2.Operating Frequency: UHF (860~960MHz)

3.IC Available at 860MHz~960MHz: UHF EPC 4.Gen2 (EPC CLASS 1 GEN 2)

4.   Data retention time at +55ºC: > 10 years

5.   100, 000 times reading & writing

6.   Exceptional temperature and harsh environmental performance

 RFID laundry is a button size identification tag

5.Size: Dia.17mm, 170mm including the 2 antenna wire, thickness:3.5mm

7.Material: Nylon / Polyester / PPS / EPOXY

8.Simultaneous Identification of Tags: Up to 50 tags per second

9.Operating Temperature: -25ºC to 120ºC | +150ºC total

50 Hrs | +200ºC total 20Sec

10.Storage Temperature: -25ºC to 90ºC

11.Typical programming cycles at +25ºC: 100, 000

12.Typical Data retention time at +55ºC: > 10 years

b. Competitive Advantage

1.   Waterproof IP 68

2.   Simultaneous Identification of Tags: Up to 50 tags per second

3.   Reading Distance: Up to 300cm~500cm

GSM:

GSM (Global System for Mobile communication) is a digital mobile telephony system that is widely used in Europe and other parts of the world. GSM uses a variation of time division multiple access (TDMA) and is the most widely used of the three digital wireless telephony technologies (TDMA, GSM, and CDMA). GSM digitizes and compresses data, then sends it down a channel with two other streams of user data, each in its own time slot. It operates at either the 900 MHz or 1800 MHz frequency band. Mobile services based on GSM technology were first launched in Finland in 1991. Today, more than 690 mobile networks provide GSM services across 213 countries and GSM represents 82.4% of all global mobile connections. According to GSM World, there are now more than 2 billion GSM mobile phone users worldwide. GSM World references China as "the largest single GSM market, with more than 370 million users, followed by Russia with 145 million, India with 83 million and the USA with 78 million users."
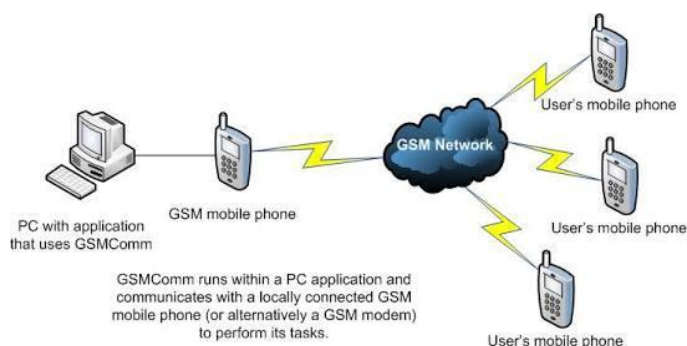
Since many GSM network operators have roaming agreements with foreign operators, users can often
 continue to use their mobile phones when they travel to other countries. SIM cards (Subscriber Identity Module) holding home network access configurations may be switched to those will metered local access, significantly reducing roaming costs while experiencing no reductions in service.

GSM, together with other technologies, is part of the evolution of wireless mobile tele communications that includes High-Speed Circuit-Switched Data (HSCSD), General Packet Radio System (GPRS), Enhanced Data GSM Environment (EDGE), and Universal Mobile Telecommunications Service (UMTS).

III.ARM PROCESSOR

Over the last few years, the ARM architecture has become the most pervasive 32-bitarchitecture in the world, with wide range of ICs available from various IC manufacturers. ARM processors are embedded in products

ranging from cell/mobile phones to automotive braking systems. A worldwide community of ARM partners and third-party vendors has developed among semiconductor and product design companies, including hardware engineers, system designers, and software developers.

ARM7 is one of the widely used micro-controller family in embedded system application. This section is humble effort for explaining basic features of ARM-7.

ARM is a family of instruction set architectures for computer processors based on a reduced instruction set computing (RISC) architecture developed by British company ARM Holdings.

A RISC-based computer design approach means ARM processors require significantly fewer transistors than typical processors in average computers. This approach reduces costs, heat and power use. These are desirable traits for light, portable, battery-powered devices— including smartphones, laptops, tablet and notepad computers), and other embedded systems. A simpler design facilitates more efficient multi-core CPUs and higher core counts at lower cost, providing higher processing power and improved energy efficiency for servers and supercomputers.
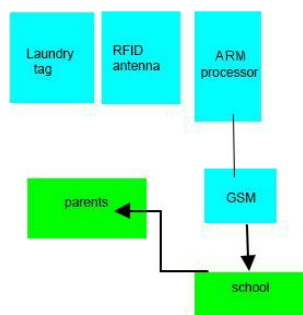
IV.ARCHITECTURE DIAGRAM

RFID tag is a Radio frequency id used for identifying the device which uses RFID laundry tag among the different types of RFID tags which are available. RFID inlay has unique number inside each laundry tag . for eg: IC 77301 . The RFID laundry number is read by the RFID antenna placed inside the school.

And another RFID antenna is placed in the school entrance if a child does not board the school van or enter the school campus within their allotted time immediately RFID antenna will posted the information from the ARM processor and GSM. Then the GSM send the message to the school and the school host computer. The school host computer to check a child details and then sent information to a parents. School management in case of the child's missing.

V.CONCLUSION AND FUTURE

ENHANCEMENT:

Finally the child missing problem are solved my this article in low cost using RFID laundry tag.

REFERENCES

1. Zhihua Wang; Xuguang Sun; Chun Zhang; Yongming Li, "Issues in Integrated Circuit Design for UHF RFID," Radio-Frequency Integration Technology, 2007. RFIT 007. IEEE International Workshop on , vol., no., pp.322-328, 9-11 Dec. 2007
2. Review Paper of various RFID standards:
3. Glidden, R.; Bockorick, C.; Cooper, S.; Diorio, C.; Dressler, D.; Gutnik, V.; Hagen, C.; Hara, D.; Hass, T.; Humes, T.; Hyde, J.; Oliver, R.; Onen, O.; Pesavento, A.; Sundstrom, K.; Thomas, M., "Design of ultra-low-cost UHF RFID tags for supply chain applications," Communications Magazine, IEEE , vol.42, no.8, pp. 140-151, Aug. 2004
4. Tag Circuit DesignUHF / Microwave:Passive UHF Tag with 9.25-m range, no sensors Karthaus, U.; Fischer, M., "Fully integrated
5. passive UHF RFID transponder IC with 16.7-μW minimum RF input power," Solid-State Circuits, IEEE Journal of , vol.38, no.10, pp.1602-1608, Oct. 2003
6. Semi-passive UHF Tag, low power analog section Pillai, V.; Heinrich, H.; Dieska, D.; Nikitin, P.V.; Martinez, R.; Rao, K.V.S., "An Ultra-Low-Power Long Range Battery/Passive RFID Tag for UHF and Microwave Bands With a Current Consumption of 700 nA at 1.5 V,"
7. Circuits and Systems I: Regular Papers, IEEE Transactions on , vol.54, no.7, pp.1500-1512, XVIII. July 2007 Passive UHF Tag with Temperature Sensor Hongwei Shen; Lilan Li; Yumei Zhou, "Fully integrated passive UHF RFID tag with XIX. temperature sensor for environment monitoring," ASIC,2007. ASICON '07. 7th XX.International Conference on , vol., no., pp.360-363, 22-25 Oct. 2007
8. Passive Tag with Temperature Sensor Zhou Shenghua; Wu Nanjian, "A novel ultra low power temperature sensor for UHF RFID tag
9. chip," Solid-State Circuits Conference, 2007. ASSCC '07. IEEE Asian , vol., no., pp.464-467, 12-14 Nov. 2007
10. Passive Tag with Temperature, Light sensors Namjun, Cho, et al. "A 5.1-uW 0.3-mm2 UHF RFID Tag Chip Integrated With Sensors for Wireless Environmental Monitoring". IEEE European Solid State Circuits Conference
11. (ESSCIRC), Sep. 2005, Grenoble, France. Passive Tag with ADC, no sensor
12. Kocer, F.; Flynn, M.P., "A new transponder architecture with on-chip ADC for long-range telemetry applications," Solid-StateCircuits, IEEE Journal of , vol.41, no.5, pp. 1142-1148, May 2006
13. Man, A.S.W.; Zhang, E.S.; Chan, H.T.; Lau,V.K.N.; Tsui, C.Y.; Luong, H.C., "Design and Implementation of a Low-power Baseband-system for RFID Tag," Circuits and Systems, 2007. ISCAS 2007. IEEE International Symposium on , vol., no., pp.1585-1588, 27-30 May 2007
14. Nakamoto, H.; Yamazaki, D.; Yamamoto, T.; Kurata, H.; Yamada, S.; Mukaida, K.; Ninomiya, T.; Ohkawa, T.; Masui, S.; Gotoh, K., "A Passive UHF RF Identification CMOS Tag IC Using Ferroelectric RAM in 0.35-μm