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POCKET FINDER SYSTEM BASED ON ANDROID MOBILE TERMINAL

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ABSTRACT:

Recently, all over the world, crime against children is increasing at higher rates and it is high time to offer safety support system for the children going to schools. This paper focuses on implementing children tracking system for every child attending school. However the existing systems are not powerful enough to prevent the crime against children since these systems give information about the children group and not about each child resulting in low assurance about their child safety to parents and also does not concentrate on sensing the cry of the child and intimating the same to its parents. The proposed system includes a child module and two receiver modules for getting the information about the missed child on periodical basis. The child module includes ARM7 microcontroller (lpc 21XX), Global positioning system (GPS), Global system for mobile communication (GSM), Voice playback circuit and the receiver module includes Android mobile device in parent's hand and the other as monitoring database in control room of the school.

INDEX TERMS: Android, ARM7, GPS, GSM, lpc21XX.

INTRODUCTION:

Children Tracking system is widely used all over the world to assure parents that their wards are safe from suspicious actions and their kid is happy in school atmosphere without crying. The proposed system includes tracking the child's movement to and from school. The information pertaining to missed child is sent to control room of the school as well as to their respective parents, if they move beyond the coverage area. Not only the information about the child's whereabouts but also whether the child is crying is sent to parents through text message to their Android mobile device.

System developed by Yuichiro MORI, et.al, uses "Autonomous Clustering technique "for managing groups of Android terminals attached to children in school. Android terminals have wireless LAN and Bluetooth device. It adopts Bluetooth communication among Android mobile terminals in every cluster to collect information and cluster head delivers the same through tags to server at school using wireless LAN. It results in lack of individual attention towards the children since the cluster head sends the information about the children group and not about each individual & also does not concentrate on child crying inside the school. It offers less security [1].

Children tracking system is also developed based on mobile adhoc networks. System developed in [2] says that in GPS system and tag based system, each parent cannot obtain group information on the vicinity of the child. Through field experiments, it is confirmed that, as long as children walked at normal speed on the predetermined way to and back from school, the system could provide location and group information of children to their parents. From experimental analysis, it is found that system independent factors such as power shortage in phone and performing wrong registrations in Bluetooth tags dominate in lowering average tag recognition rates for school routes. Tracking system in hospital environment is performed using integrated Ultra wideband and GPS technologies for performing efficient indoor/outdoor tracking. Experiments show that system may provide extra protection for patients but system rely on Wi-Fi network to transmit data and updation rate is quite low due to network jam. It includes complicated calibration procedure as well as high set up cost for the UWB sensor network [3].

Multichip Clustering scheme can be incorporated for adhoc network and it includes dynamic change in topology of adhoc networks, overhead for the management of the network is small and uniformly distributed. It does not include design of generic function to evaluate adaptability of clustering schemes [5]. The above mentioned system [1] inspired me to make an attempt to reconfigure it by adding few features and thus making it more secure compared to the existing one.

LITERATURE REVIEW:

Saranya.J. et.al[2013][1]: In this paper focuses on tracking a child's position and its location is sent to its parent and control Room. It can be extended to perform the same for all children in the school by reducing the size of the child module, thus fixing it to ID card of every child.

Bharathi.G. et.al[2014][2]: This project implementation primarily focuses on tracking of a child's position and its location is sent to His/her parent. One best feature is whenever any authorized person or parent sends message to GSM Modem placed in the transmitter which is with the missed person. The location is tracked by the GPS module and these values are sending to the parent or authorized person through the GSM at the transmitter. The whole system is integrated in a small chip and Attached to the person body.

Al-Mazloum.A. et.al[2013][3]: The proposed solution takes the advantage of the location services provided by mobile phone since most of kids carry mobile phones. The mobile application use the GPS and SMS services found in Android mobile phones. The architecture of system built on two main component, GPS satellite, and GSM telephony services. Developing this project would not have been possible without studying related and existing works. Some of these works relies on internet connectivity or a server that has to be up running. The proposed system relies only on two main services, telephony and location, thus eliminating the need for internet connection or a dedicated server.

Mankar pooja et.al[2015][4]:This project focuses on tracking a child's position and its location is sent to its parent mobile and it can be extended same to all children's by reducing size of child module in the form of small chip , get fixed to the id card .To ensure the safety of child. This project also focuses that, not only for children detection. It can use for girls, women safety which is very important nowadays.

GuptaRuchikaet.al[2011]: This paper presents a low cost human tracking system using GPRS GPS on GSM network. The combination of both the technologies i.e. GPS and GPRS provides a constant, continuous and real time human tracking system. The cost of the overall system has been reduced by two facts one is using the existing mobile phone and another is using GPRS instead SMS. It has been hoped that the use of the overall system can eliminate the requirement of first the traditional GPS receivers and second costly SMS based tracking systems.

SYSTEM DESIGN:

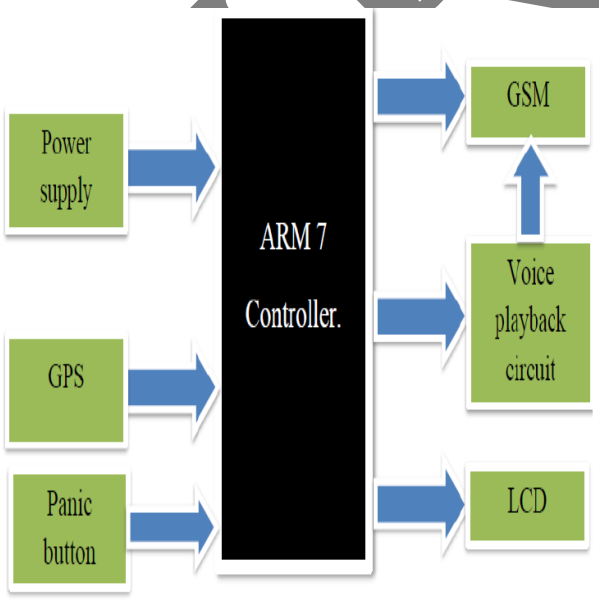

fig 1: transmitter

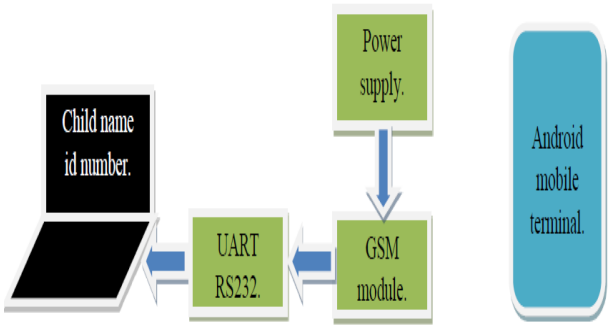

FIG 2: RECEIVER.

This proposed system implementing children tracking system for every child attending school.

However the existing systems are not powerful enough to prevent the crime against children since these systems give information about the children group and not about each child resulting in low assurance about their child safety to parents and also does not concentrate on sensing the cry of the child and intimating the same to its parents.

ARM7:

The LPC21xx microcontrollers are based on a 32-bit ARM7TDMI-S CPU with real-time emulation and embedded trace support that combine the microcontroller with embedded high-speed flash memory ranging from 32 KB to 512 KB. A 128-bit wide memory interface and unique accelerator architecture enable 32-bit code execution at the maximum clock rate. For critical code size applications, the alternative 16-bit Thumb mode reduces code by more than 30 % with minimal performance penalty. Due to their tiny size and low power consumption, LPC21xx are ideal for applications where miniaturization is a key requirement, such as access control and point-of-sale. Serial s interfaces ranging from a USB 2.0 Full-speed device, multiple UARTs, SPI, SSP to I2C-bus and on-chip SRAM of 8 KB up to 40 KB, make these devices very well suited for communication gateways and protocol converters, soft modems, voice recognition and low end imaging, providing both large buffer size and high processing power. Various 32-bit timers, single or dual 10-bit ADC(s), 10-bit DAC, PWM channels and 45 fast GPIO lines with up to nine edge or level sensitive external interrupt pins make these microcontrollers suitable for industrial control and medical systems.

GPS:

GPS is a multiple – satellite based radio positioning system in which each GPS satellite transmits data that allows user to precisely measure the distance from the selected satellite to his antenna and to compute position, velocity and time parameters to high degree of accuracy. GPS delivers with high sensitivity and accuracy with low power consumption.

GSM:

The advantage of GSM is, its international roaming capability in over 100 countries, improved battery life, efficient network design for less expensive system expansion, efficient use of spectrum, advanced features such as short messaging and caller ID, a wide variety of handsets and accessories, high stability mobile fax and data up to 9600baud, Easy to use over air activation, and all account information is held in a smart card, which can be moved from handset to handset.

VOICE PLAYBACK CIRCUIT:

The voice playback circuit has the following features:

1) Single chip, high quality voice recording and playback solution.
2) User friendly, easy to use operation.
3) Non - Volatile - flash memory technology, no battery backup is required.
4) 4-8 KHz adjustable sampling rate can be done.
5) Audio output to drive a speaker or audio out for public address system.
6) Can record voice with the help of on-board microphone or via any audio input.

SOFTWARE AT SCHOOL:

GUI (Graphical User Interface) software will be developed using Visual Basic 6.0 or equivalent to make the job easier and simpler.

RESULTS AND DISCUSSION:

LPC2138(ARM board):

FIG 3: LPC213 (ARM BOARD).

(Fig.3) illustrates lpc 2378 microcontroller .This controller filters the incoming GPS data which holds repeated six packets and forwards only the latitude and longitude values (i.e.) current position of the child to GSM.

ARM OUTPUT:

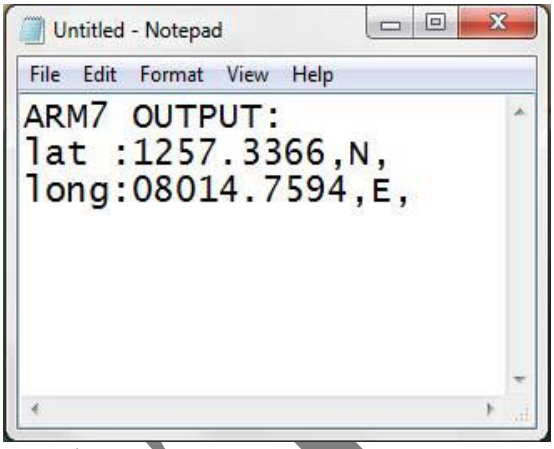

FIG 4: ARM output.

GPS MODULE:

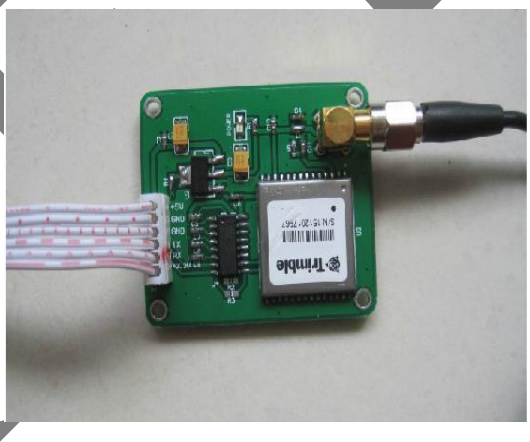

FIG 5.GPS MODULE.

When supply is provided to GPS board (Fig.5), it automatically senses the current position of the child and Sends its data to microcontroller.

GPS OUTPUT:

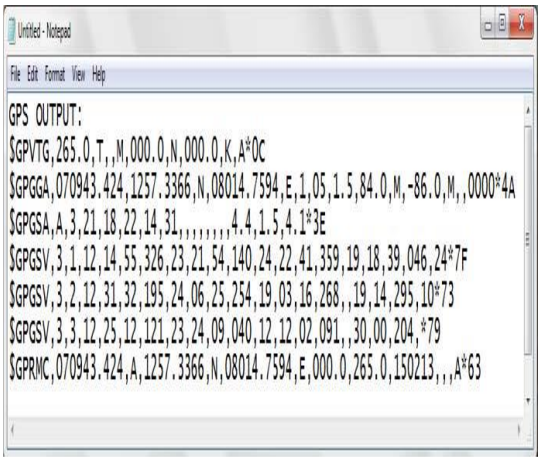

FIG 6: GPS output

GSM:

FIG. 7: GSM.

GSM module (Fig.7) receives the latitude and longitude value of the child's current position and sends it to two receivers.

CONCLUSION:

This project implementation primarily focuses on tracking child's position and its location is sent to its parent and control room. It can be extended to perform the same for all children in the school by reducing the size of the child module, thus fixing it to ID card of every child. This project also focuses on recording a child's cry and when it matches with crying of the child in school the text message is sent to its parents. It can be extended by placing voice recognizing sensors which senses the cry of all the children inside the school and send the information to their parents appropriately by using the school database.

REFERENCES:

[1] Yuichiro MORI, Hideharu KOJIMA, Eitaro KOHNO, Shinji INOUE, Tomoyuki OHTA, and Yoshiaki KAKUDA, "*A Self-Configurable New Generation Children Tracking System based on Mobile Ad Hoc Networks Consisting of Android Mobile Terminals"* proposed in 2011tenth International symposium on Autonomous decentralized systems. W.-K. Chen, Linear Networks and Systems (Book style). Belmont, CA:
Wadsworth, 1993, pp. 123–135.

[2] Eitaro Kohno, TomoyukiOhta ,Yoshiaki KAKUDA ,Shinji Inoue and yusuke Akiyama, *"Performance Improvement of hiroshima city children tracking system by correction of wrong registrations on school routes"*Proc. 9th IEEE International Symposium on Autonomous Decentralized Systems (ISADS 2009), Athens, Greece, pp.261-265, 2009.

[3] Lijun Jiang, Lim Nam Hoe, Lay Leong Loon, "*Integrated UWB and GPS Location Sensing System in Hospital Environment"*, proposed in 2010 5th IEEE conference on Industrial Electronics and Applications.

[4] Peng Wang, Zhiwen Zhao, ChongbinXu, Zushun Wu, Yi Luo*," Design and Implementation of the Low-Power tracking System Based on GPSGPRS Module"* proposed in 2010 5th IEEE conference on IndustrialElectronics and Applications.

[5] TomoyukiOhta, Shinji Inoue, Yoshiaki Kakuda, and Kenji Ishida, "*An adaptive multihop clustering scheme for ad hoc networks with highmobility*," IEICE Transactions on Fundamentals of Electronics, Communications and Computer Sciences (Special Issue on Multidimensional Mobile Information Networks), vol.E86-A, no.7, pp.1689-1697, 2003.

[6] Eitaro Kohno, TomoyukiOhta, and Yoshiaki Kakuda, "*Secure decentralized data transfer against node capture attacks for wirelesssensor networks*," Proc. 9th IEEE International Symposium onAutonomous Decentralized Systems (ISADS2009), Athens, Greece,pp.35-40, 2009.

[7] Atsushi Ito, Yoshiaki Kakuda, Tomoyuki Ohta and Shinji Inoue, "*Newsafety support system for children on school routes using mobile ad hocnetworks*",IEICE Transactions on Communications, vol.E94-B, no.1,2011, to appear.

[8] Hsiao, W.C.M and S.K.J chang , " *The Optimal location update strategy of cellular network based traffic information system",* intelligentTransportation Systems conference, 2006.

[9] H.Taniguchi, M. Inoue, T. Masuzawa, and H. Fujiwara , " *Clustering algorithm in adhoc networks*" IEICE Trans, Inf. & Syst. (Japanese Edition), Vol. J84-D-I, no.2, pp.127-135, Feb.2001.

[10] C.R. Lin and M. Gerla, *"Distributed clustering for adhocnetworks,"*IEEE J. sel. Areas Common., Vol.15, no.7, pp. 1265-1275,1997.

[11] Otsason, A. Varshavsky, A. LaMarca, and E. D. Lara,"*Accurate GSMIndore Location*," in Proc. Ubiquitous Comput.: 7th Int. Conf. (Ubi-Comp 2005), Tokyo, Japan, pp. 141–158.

[12] L. M. Ni,Y. Liu,Y. C. Lau, and A. P. Patil, "*LANDMARC: Indoor location sensing usingactiveRFID*," Wireless Netw., vol. 10, pp. 701–710, Nov. 2004.

[13] V. Otsason, A. Varshavsky, A. LaMarca, and E. D. Lara, "*AccurateGSM indoor localization*," in Proc. Ubiquitous Comput.: 7thInt. Conf. (Ubi-Comp 2005), Tokyo, Japan, pp. 141–158.

[14] S.Basangi, *"Distributed Clustering for adhoc networks*," Proc.99' Int'1 symp. On parallel architectures, Algorithms and networks (I-Span'99),
pp.310-315, 1999.

[15] A.D. Amis, R.Prakash, T.H.P. Voung, and D.T. Huynh, *"Max-min decluster formation in ad hoc networks,"* IEICE Trans. Inf. & Syst.(Japanese Edition), Vol.J84-D-1, no.2, pp.127-135, Feb 2001.