IOSR Journal of Engineering (IOSRJEN) **www.iosrjen.org**
ISSN (e): 2250-3021, ISSN (p): 2278-8719
Volume 2, PP 34-37

Implementation of Children Tracking System on Android Mobile Terminals

Yuvraj rathod[1], Manoj Dighole Prof. Ritu Sharma[3]
[1,2](Students, Department of electronic and Telecommunication, Atharva College of engineering/ India)
[3](Ass, Professor, Department of electronic and Telecommunication, Atharva College of engineering/ India)

***Abstract**: Now a day in all over the world in every 40 seconds child become missing or kidnapped. The increasing prevalence of children wandering has many parents very concerned. We have to see and read many stories about children's or students who are kidnapped or not reaching homes. Most of the stories have had tragic endings. This paper focuses on implementing children tracking location system for every child attending school. Nowadays more children getting lost, Sen. Charles Schumer has proposed that the federal government provide funding for tracking devices for Autistic children so they do not go missing. These proposed tracking devices can be worn as wrist watches, anklets or in I -cards. The child module include ARDUINO, Global positioning system, Global system for mobile communication and receiver include parents mobile phone. It is very useful for women safety.*

***Keywords:** Children tracking ,Arduino Microcontroller board, GPS Module, GSM (SIM800L), Panic Button , Arduino Software.*

I. INTRODUCTION

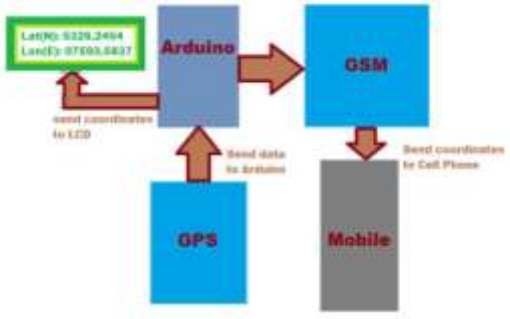
Designing a child tracking system to assure parents that their child is safe from suspicious actions and happy in school environment. The information of child being missed is sent to respective parents mobile, if they move beyond the coverage area. Also, when child wants to convey that they are in danger than they will press a panic button given on their school i-card. Mobile terminals have wireless local area network (LAN) and Bluetooth device. It adopts Bluetooth communication among mobile terminals in every group to collect information and delivers to respective server using wireless LAN.

II. SYSTEM OVERVEW

Child tracking system is totally remote phone tracking based on Android application. It remotely track the location of child and alert the parents if their child is moving outside of define area through SMS and also will alert parents if their child is crying continuously via SMS. Because of this parents will have a powerful tool to keep the observation on their child even when they can't physically see them. By using following techniques child activity can be tracked.

- SMS tracking- To alert the parents when child is crying and if he moved away from define area.
- GPS tracking- To provide current location of child to parents and also define the boundary area.
- Browser Tracking-Monitor all web browser activity on the target phone. This will give which web sites were visited in case of cell phone tracking
- Tracking/blocking- Parents can track and block call from particular number if necessary, in case of cell phone tracking system.

Alternatively Android app will be developed which will also show the location of child, for this android app received message will consist of latitude and longitude value. But for this android phone is necessarily required. This alert message will be send until child come back into define area or till system is shutdown. Because of this continuous monitoring of child will not be required. Even after this if parents want to see the current location of child they can send the message to child module and obtained the location of child.



If child is crying then it will trigger the microcontroller which will in result trigger the GSM modem and message of crying of child will be sent to parents. Setup with parents may have android phone or any other phone which is capable of supporting browsing option. On the Google map location of the child will be shown to parents.

III. COMPONENT DETAILS

III.1 Arduino Microcontroller Board

Arduino Uno is a microcontroller board based on the ATmega328P. It has 14 digital input/output pins (of which 6 can be used as PWM outputs), 6 analog inputs, a 16 MHz quartz crystal, a USB connection, a power jack, an ICSP header and a reset button. It contains everything needed to support the microcontroller; simply connect it to a computer with a USB cable or power it with a AC-to-DC adapter or battery to get started. It needs low power of 5V for functioning thus suiting for this project. The embedded microcontroller has the knowledge to give AT commands to initiate and send the child information message to mobile phone through GSM module. For those of you who are using an ATmega328 with the Arduino Boot loader code on your own circuit board here is the pin out details which shows the chip pin numbers and the associated Arduino pins

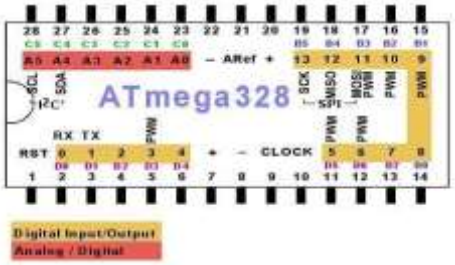


Fig1 (Arduino ATmega328 Pinout)

Port B has pins **B0 to B5**
Port C has pins **C0 to C5**
Port D has Pins **D0 to D7**

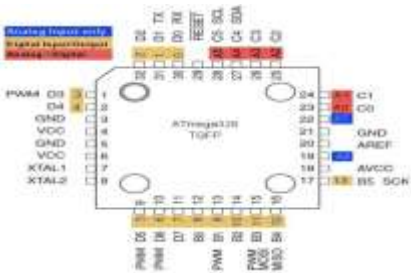


Fig2. (Arduino ATmega328 TQFP Pin out)

III.2 GPS **(NEO-6M) MODULE**

The Global Positioning System (GPS) is a satellite-based navigation system made up of at least 24 satellites. GPS works in any weather conditions, anywhere in the world, 24 hours a day, with no subscription fees or setup charges. GPS satellites circle the Earth twice a day in a precise orbit. Each satellite transmits a unique signal and orbital parameters that allow GPS devices to decode and compute the precise location of the satellite. GPS receivers use this information and trilateration to calculate a user's exact location. Essentially, the GPS receiver measures the distance to each satellite by the amount of time it takes to receive a transmitted signal. With distance measurements from a few more satellites, the receiver can determine a user's position and display it.

To calculate your 2-D position (latitude and longitude) and track movement, a GPS receiver must be locked on to the signal of at least 3 satellites. With 4 or more satellites in view, the receiver can determine your 3-D position (latitude, longitude and altitude). Generally, a GPS receiver will track 8 or more satellites, but that depends on the time of day and where you are on the earth.

Fig3. (GPS)

3.3. GSM (SIM800L)

SIM 800 support Quad-band 850/900/1800 etc., it can transmit SMS, voice and data information with low power consumption. With tiny size of 24*24*3mm, it can fit into slim or less place and compact demands of customer design. Featuring Bluetooth and Embedded AT, it allows total more cost savings and fast time- to -market for customer applications develop embedded applications. Like SMS control, Data transfer, alerts, sensors, reliable for 24x7 operation. Status is indicated by LED or screen and its simple with low cost.

Fig4. (GSM (SIM800L))

3.4. PANIC BUTTON

Whenever the child feels that he is in danger the press the panic button. By pressing the panic button the message get forwarded to parents mobile and detect the location of child.

IV. SOFTWARE SYSTEM DESIGN

IV.1 Arduino Software (IDE)-

The open-source Arduino Software (IDE) makes it easy to write the code and upload it to the board. It runs on the Windows, Mac, ios, and Linux. The environment is written in Java and based on the Processing and other open-source software.

IV.2 OUTPUT-

Child module with the help of which child press the panic button and Arduino ATmega325 microcontroller gets on and send signal to GPS. GPS send child's location send towards parent mobile and find the missing child's location.

V. ADVANTAGES

1. Application automatically operates location requests without user interaction because at that time child not have knowledge to update his location at map.
2. That application uses SMS when internet connectivity is not available. The system requires location and telephony services
3. It can be used at indoors where GPS satellites connectivity is not available. At that time it can uses network provides for location services.
4. It is also very useful for Women's safety.

VI. APPLICATION

1. Used in child's missing case.

VII. CONC LUSION AND FUTURE SCOPE

In the conclusion of project was designed for the locating missing children. This project was given depth information about child tracking system with the help of two components such as GPS and GSM telephony services the application is built in. Finally for this application has room for the enhancement. Emergency alerts such features can be added to enhance system. The proposed system will be improved in the later work.

Acknowledgements

The author wish to thank to the Zeal Education for granting me permission to do the practical in laboratory and provide the necessary software.

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 2011 tenth International symposium on Autonomous decentralized system.

[2]. Cyber Travel Tips, ―Statistics of Missing Child in Malaysia‖, available at: http://www.thecavellgroup.com/downloads/KidnappingTheGlobalEpi demic.pdf

[3]. V.Ramya, P.Vijaya Kumar, B.Palaniappan,‖ A Novel Design of Tomoyuki Ohta, Shinji Inoue, Yoshiaki Kakuda, and Kenji Ishida, An adaptive multihop clustering scheme for ad hoc networks with high mobility,‖ 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.

[4]. Reshma M. and Amruta K.M.―Survey on Different Technologies of Child Tracking System‖ Proposed in 2010 International journal of computer technology.

[5]. Saranya , J. Selvakumar ,"Implementation of children tracking system on android mobile terminal", International conference on communication and signal processing , April-2013,India.

[6]. A.Al-Mazloum, E. Omer, M. F. A. Abdullah―GPS and SMS based children tracking system using smart phone‖. International Journal of Electrical, Robotics, Electronics and Communication Engineering Vol: 7 No.2, 2013.

[7].] J.W.K. Hong, S.S. Kwon, J.Y. Kim, "WebTrafMon: Web-based Internet/Intranet Network Traffic Monitoring and Analysis System", Journal of Compute Communications, pp. 1333-1342, 1999.

[8]. E.D. Karnin, J.W. Greene, and M.E. Hellman, "On secret sharing systems" , IEEE Transactions on Information Theory, vol.IT-29, no.1, pp.35-41, 1983.

[9]. Anson Alexander, "Smartphone Usage Statistics 2012,", available at: http://ansonalex.com/infographics/smartphone-usage-statistics-2012-infographic

[10]. Cyber Travel Tips, "Statistics of Missing Child In Malaysia", available at: http://www.thecavellgroup.com/downloads/Kidnapping-TheGlobalEpidemic.pdf

[11]. Ghaith Bader Al-Suwaidi, Mohamed Jamal Zemerly, "Locating friends and family using mobile phones with global positioning system (GPS),"IEEE/ACS International Conference on Computer Systems and Applications, 2009.

[12]. Almomani, I.M., Alkhalil, N.Y., Ahmad, E.M., Jodeh, R.M.,"Ubiquitous GPS vehicle tracking and management system," 2011IEEE Jordan Conference on Applied Electrical Engineering and Computing Technologies (AEECT), pp.1-6, 6-8 Dec. 2011.

[13]. Chandra, A., Jain, S., Qadeer , M.A., "GPS Locator: An Application for Location Tracking and Sharing Using GPS for Java Enabled Handhelds," 2011 International Conference on Computational Intelligence and Communication Networks (CICN), pp.406-410, 7-9 Oct.2011.

[14]. Anderson, Ruth E., et al., "Building a transportation information system using only GPS and basic SMS infrastructure," 2009 International Conference on Information and Communication Technologies and Development (ICTD), IEEE, 2009.

[15]. Android Developers, available at: http://developer.android.com/sdk/index.html.

[16]. The Eclipse Foundation, available at: http://www.eclipse.org