

E-Tracking: an IOT Application for Social Welfare

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Abstract - Nowadays we came across many cases of child kidnapping and also nowadays every one will be busy with their work and they cant take care of their elders health status. This paper will provides an application for the parents to track their children using an hardware device and also to know the health condition of their elders for their family members like son or daughter. Now, most of the mobile phones are provided with location services capabilities allowing us to get the device current location. This work will give a solution about the location services provided by mobile phone. This application will make use of the GPS and SMS services in Android mobile phones. Parents will make the use of this application to get the information about their child's location.

I.INTRODUCTION

The proposed system presents will provides an alerting system for PROB detection using commonly available electronic gadgets to detect the PROB and alerting about that PROB. The proposed work will make use of an integrated tri-axial accelerometer in the android smart phone . Information from the accelerometer should be valuated with several threshold based algorithms and position data to determine a PROB. The threshold value is based on user providing based on different parameters .

The algorithm will adapts an different movements that a smartphone will experiences as opposed to similar systems which require users to mount their accelerometers to their body. If a PROB is detected then a notification has to be raised which requires the user's response. If the user doesn't respond, then the system alerts an informational message via SMS for the pre-specified registered contacts. If the user responds to the voice notification then the system will automatically connects, and turn the speaker phone from silent mode to general mode. If a pre registered social contact confirms a PROB, then an appropriate action is alerted. The system provides a reliable, low cost for detecting the PROB making use of an simple graphical interface without overwhelming the user with uncomfortable sensors.

E-Tracking is been very powerful application used by the parents or the guardians to know about their children status . Even if the childs parent or the guardian phone is in silent mode the ALERT MSG will automiacally changes the phone to general mode and gives a voice message YOUR SON // DAUGHTER IS IN TROUBLE PLEASE HELP.... PLEASE HELP.... PLEASE HELP....

REPEATEDLY AS A RING TONE until they listen and stop it.

As soon as the child enter the school gate then the GPS which has been monitored will sends an message to the child parent that their child has been safely reached the school. In the same manner if the child leaves the school gate automatically again an voice message will be sent to their parents that their child has left the school.

If the parent needs to know about the location about their children then they need to send a MSG called LOC from their smart phone to the child's hardware device. If they want to get to know about their child's location for every 5 min then they have to send an MSG called ENABLE, which will be already stored and gets connected with the GOOGLE MAPS using GPRS and plot the ROUTE in live.

In the same way if the elders like grand parents or any other elders if they are not feeling well and the family members are all working and if they cant stay back at home and to take care of their elders so they can also use this hardware device as a pendant of their chain or ring. If the elders are in need of any medical support at the time when no one in home at that time then they can press the button in the pendant. When they press the button in their pendant then immediately the message will be sent to the registered contacts previously, which may be their children contacts or any other who is the member of their family, then that person who will get the message can take immediate action for that. This message will also be in the form of voice notification.

II.PREVIOUS STUDIES OF TRACKING DEVICES

GSM System:

GSM (Global System for Mobile Communications, originally Grouped Special Mobile), is a standardized one which is developed by the European Telecommunications Standards Institute (ETSI) to describe protocols for second generation (2G) digital cellular networks used by smart phones.. The GSM standard was developed as a replacement for first generation (1G) analog cellular networks, and initially it briefs a digital, circuit-switched network optimized for full duplex voice telephone. This was expanded over time to include data communications, first by circuit-switched transport, then packet data transport via GPRS (General Packet Radio Services) and EDGE (Enhanced Data rates for GSM Evolution or

EGPRS). The other improvements were made when the 3GPP developed third generation (3G) UMTS standards followed by fourth generation (4G) LTE Advanced standards.

B. GPRS System:

General Packet radio service (GPRS) is a packet oriented mobile data service on the 2G and 3G cellular communication system's global system for mobile communications (GSM). GPRS was originally standardized by European Telecommunications Standards Institute (ETSI) in response to the earlier CDPD and i-mode packet-switched cellular technologies.

GPRS usage is typically charged based on volume of data transferred, contrasting with circuit switched data, which is usually billed per minute of connection time. Usage above the bundle cap is either charged per megabyte or disallowed. GPRS is a best-effort service, implying variable throughput and latency that depend on the number of other users sharing the service concurrently, as opposed to circuit switching, where a certain quality of service (QoS) is guaranteed during the connection. In 2G systems, GPRS provides data rates of 56–114 Kbit/second. 2G cellular technology combined with GPRS is sometimes described as 2.5G, that is, a technology between the second (2G) and third (3G) generations of mobile telephone. It provides moderate-speed data transfer, by using unused time division multiple access (TDMA) channels in, for example, the GSM system.

C. GPS System:

The Global Positioning System (GPS) is a space-based satellite navigation system that provides location and time information in all weather conditions, everywhere on the Earth and near to the earth where there is an unobstructed line of sight to four or more GPS satellites. The system will help in handling the critical capabilities in military, civil and commercial users around the world. It is under the control of the United States government and is freely accessible to anyone. The use of GPS system was started by the US Defense Department to keep track of their soldiers but later on this device was available for commercial use in the world. This device was greatly used by the transportation and logistics companies who used this technology to track the real and exact position of their vehicle, ships and cargoes. Today the GPS tracking system is used for tracking individuals to know their position or to help them in case of any emergency. GPS equipped individual can seek quick and immediate help whenever required by just pressing alarm button.

D. GPS Specifications and Working of Tracking Systems:

GPS tracking device for children is based on Global Positioning System technology that functions with the help of satellite systems deployed on the orbits of the earth. Continuous signals are sent by the satellites that are received by the receptor on the earth. Thus, current position of any object or individual can be traced by determining the latitude and longitude. If the GPS device is aware of its

position it can help user to determine distances and direction of other locations

E. GPS Child Locator – Latest Gift of Technology:

GPS tracking device for children is an extremely versatile device that has the potential to keep the parents informed about their child location. This GPS child locator is incorporated with latest technology to make it more and more advanced for the better performances and uses. The device has get key ring sized that can be instantly and inexpensively used to keep tabs on kids anytime and anywhere. GPS child locator system has a transmitter that can be attached to wrist or kid's schoolbag. The transmitter with the help of existing GPS network calculates its position and then transmits to the guardian's smart phone. The individual's location is usually given as a map coordinate and if the person is using any smart phone or a computer then the location is presented in a real time on a Google maps. GPS tracking device for children has come as a boon for parents who are extremely concern and stressed about their children when they are outside their protection. With GPS child tracker around parents can have 24/7 track on their kids thereby assuring them complete safety and protection.

F. GPS tracking child's shoes:

Equipping shoes with GPS tracking devices is one way to help parents put their minds at ease parents' losing their children. Guardians look for ways to ensure they can find their children if they get separated. Some other parents want a way to know when their teens arrive safely at their destinations and to ensure that they stay where they say they are going.

Smart GPS shoes, which have built-in GPS devices with cell phone and motion-detector capabilities. Parents can embed the hardware device in the child's shoe to know if their child travels more than a specified distance from a desired location. The hardware device send their locations in real time, so parents can track the location of their child using GPS maps and find where the child is located at. These devices are designed to be tracked nearly anywhere in the world.

G. Shoes offer advanced personal location services:

The GPS tracking system which uses internet connection to track the locations. The device enables guardians to easily define geographical boundaries on a Google maps and to set up cell phone alerts if a perimeter is accelerometer value crosses the threshold value. This should significantly benefit guardians of children and the elderly, as they can easily monitor the current location of their child through a simple text message. The power source enables a guardian to track the location of a loved one and the performance and status of the device itself from any handheld.

H. The Tracking system:

Hardware is a device that is used to locate a child when the child is in the problem. This device can be easily installed in a child's shoe, belt or bag. The parent transmitter doubles as a keychain, so it's easy to carry anywhere. If the

child is 30 feet away from transmitter; parents' receive an instant alert which will make it easier for parents to find their child. Additionally, they can push the button on their transmitter to sound a loud alarm on their child's receiver unit, the hardware which is fixed in child's shoe, belt or bag.

III. IMPLEMENTATION

As result of the previous studies about the systems that are working by GPS tracking system, the researcher finds that a new forms can be added in the design of those systems to fit the children in terms of the behavior and wishes as well as to fit the behavior of the kidnapper and his wish to steal the child's status. Considering this, the researcher is able to design an attractive shoes connected to a belt containing the GPS tracking system that can be installed in all kinds of shoes that can be used by the child when he want to change or replace this shoes with another one as well as to decrease the layouts as well as it can be charged electrically away from the shoes and can be maintained and its spare parts can be replaced.

The Global Positioning System (GPS) that is provided with cell phone can send text message to the parents mobile if the device is out of range.

The research used this system and made the shoe prototype model and performed the design by the materials and the appropriate dimensions as well as the design is provided with the system in special belt, showing the system inside the belt. After performing the design and his success in achieving the objective, the researcher decides to recommend using this type of tracking shoe

IV. CONCLUSION

The proposed work makes use of hardware for the safety of children. Usually child cannot carry mobile phones to their school so we make use a hardware device so that the child is secured from the problem like kidnapping of child, child missing etc., And the child's location will be updated for every five minutes to their parent's smartphone. This hardware device is also applicable to the elders that are the hardware is fixed in the elder's pendant so that if they are suffering from any health issues like heart attack etc., this hardware can be useful. In future, this hardware device is reduced to small size and can be fixed in child's belt and shoes.

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