

## New Product Assessment Wander Away TattleTale

Wander Away TattleTale is an electronic child monitoring device consisting of two components, a receiver worn by the caregiver and a transmitter worn by the child. This system utilizes current Bluetooth technology to ensure the child stays within a specified perimeter of the caregiver and is designed so that an alarm is activated if the child leaves the perimeter.

The following report includes a technical review, review of competition, a preliminary patent search, a sample of market feedback, and an investigation into trends that may affect the market for the Wander Not.

### Technical Review

Our technical reviewer, a licensed professional engineer specializing in telecommunication and satellite technology and former professor in the electrical and computer engineering department at a major university, provided the following professional review of the Wander Away TattleTale:

"This device is unique in the sense that it uses distinct codes to allow for multiple units. From an engineering standpoint, I do not see any real obstacles to manufacturing this product. These devices can be designed, manufactured, and sold without any really complicated engineering since the Bluetooth devices can be purchased as modules and will not need to be developed from scratch. The problem of FCC licensing is also eliminated if off-the-shelf Bluetooth modules are used.

One item that is usually forgotten, and was also forgotten here, is the problem of power management. The transmitters will require the most power and will require replaceable or rechargeable batteries. Therefore, I think that the transmitter should be placed on the adult and not on the child. The largest battery drain could be kept with the unit on the adult, allowing the device on the child to be as small as possible. When a child moves beyond the 'protected zone,' having the alarm activate on the adult does not tell the adult where the child is. Having the receiver on the child tells the adult immediately where the child is by locating the sound of the alarm. If the alarm has not gone off and the adult cannot see the child, the adult could push a button on the transmitter and have the alarm go off on the child for a brief time, similar to the way we currently find lost cordless telephones or lost controls for our television. Also, if the child is doing something that the adult does not think is appropriate, the guardian could touch the alarm button briefly and not have to get up or discipline the child by shouting at them. Imagine a 'bad person' grabbing a child's hand and trying to walk away with them when all of a sudden the alarm goes off on the child. Everyone around the child would immediately know that there is a problem and could come to the child's rescue."

## Competition

From a user benefit standpoint, the most closely related competitive product appears to be the Child Monitoring System, manufactured by Bluespan Inc. Wherify Wireless Inc. also had a similar product, but it was discontinued almost two years ago. These two products use wireless technology to transmit signals between the wearer and the parent to alert the parent when the wearer has moved out of the designated range. Other related competition using RFID technology includes child tracking systems by Remote Play, Incorporated. Electronic monitoring systems and GPS programmable cell phones will also increase the competitive pressure for the Wander Away TattleTale. More broadly related competition includes the Amberwatch, manufactured Vertex Group LLC, which is a wristwatch that releases a distress signal when activated by the wearer.



The most closely related product appears to be the Child Monitoring System, manufactured by **Bluespan Inc.** (Round Rock, TX; 512-244-2866, [www.ion-kids.com](http://www.ion-kids.com)), and is a tracking device that consists of a base unit that is held by the guardian and a Wristag™ that is worn by the child. "The Wristag is a tamper-proof bracelet that uses a locking device that can only be opened with a key. Both units transmit signals to each other through ionTechnology™ up to 500 feet outside and 350 feet indoors. The system also uses point-to-point wireless communication systems, which prevent cell towers, satellites and rooftops from disrupting the signals. This technology also changes transmission frequency every few seconds to reduce the chances of any malicious monitoring of the child's Wristag," according to company literature. The Wristag is equipped with sensors that detect the presence of the child's skin, and if a gap between the two occurs, the alarm sounds on the base unit. The Child Monitoring System comes with a total of four Wristags and sells for about \$XXX on company and distributor websites.

The GPS Wristwatch, manufactured by **Wherify Wireless Inc.** (Redwood Shores, CA; 650-551 5200, [www.wherify.com](http://www.wherify.com)), is a wristwatch that uses GPS and 911 capabilities to notify the police and parent of the location of the wearer if the wearer is in danger. The location of the wearer can be tracked by phone or Internet in about one minute, according to company literature. The wristwatch has two buttons that will activate a 911 response when pressed for three seconds. This feature can be deactivated by the subscriber. The water and scratch-resistant watch is adjustable and lightweight, according to company literature. An additional feature includes a built-in pager that receives and stores 10 numeric pages. The patented SafetyLock prevents the unwanted removal of the watch and can be activated manually or remotely with the keychain. The GPS Wristwatch, introduced to the market in 2002, sold for about \$XXX on the company and distributor's websites but was discontinued almost two years ago because it did not meet targeted market penetration objectives, according to company representatives.



"It was more of a technology statement than anything else. Any first-generation product is going to be limited. We sold thousands of them, but not hundreds of thousands", Neher, CEO of Wherify Wireless said ([www.heinzawards.net](http://www.heinzawards.net)).

"Customers want a device for their children that is easy to use and provides security and safety for their children," according to the marketing manager from Wherify Wireless Inc. At the time the GPS Wristwatch entered the market it retailed for \$400, but the product was selling for \$300 when it was discontinued. "The watch was too expensive. Customers wanted two-way communication if they were to pay \$400 for a child's wristwatch."

A product that is expected to enter the U.S. market in the near future, KinderGUARD, a subsidiary of TIBUS (Holywood, Northern Ireland; +44(0)28 9042 4190; [www.kinderguard.co.uk](http://www.kinderguard.co.uk)), manufactures an integrated biometric sensor and GPS personal locator device. "The combination of GPS, bio-metrics (monitoring of bio-signs), and the software capability to define and establish behavioural rule parameters achieves an unrivalled personal security solution, according to company literature. "KinderGUARD will contain a miniature chip with its own power source that calibrates a GPS signal. This signal can then be accessed from any Internet-connected device, and over-laid onto a digital map of the area to indicate physical spatial location anywhere in the world. Parents and carers can, through the KinderGUARD secure application software, define the weekly calendar of events and locations for their child / children, and then subsequently monitor and report their exact position in real time. The system will also be capable of monitoring and reporting the previous locations of the child over a specified period of time. KinderGUARD will also contain the unique capability to generate and transmit a "biometric signature" that is unique to the wearer- this will enable parents to monitor attributes such as skin temperature, heart signal, stress level, etc. This will also act as confirmation that the device continues to be worn by the intended child - and if removed (and / or an attribute of the biometric signature or spatial location changes suddenly) a software alarm can be raised, and a message sent to the parent or carer immediately via the KinderGUARD Management and Control Centre." The product is still a prototype, and the company claims that it shows potential in other sectors including prisoner tracking and patient care at home and in hospitals (Discovery Channel US; February 18, 2006)

Other closely related competition includes electronic child tracking systems that use RFID technology. As mentioned by the client, the In-Reach Child Tracking System, manufactured by **Remote Play Inc.** (Lawrenceville, NJ; 609-771-4445, [www.remoteplay.com](http://www.remoteplay.com)), is a two-unit tracking system that allows the parent or guardian to set boundaries as to how much space the child is allowed to occupy.

"The unit that stays with the guardian is a monitor that allows the parent to view the proximity of the child from 10 to 300 feet away. A Triple Alert System sounds or vibrates if the child leaves the pre-set boundary, if the unit is removed, or if the child presses the panic button. The other unit is an adjustable child SensorBelt™ that fits around a child's waist and uses wireless ChildAlert technology developed by Remote Play Inc. The belt is tamper-proof and secures with the use of a buckle." Additional units can be purchased for \$49 to



track up to three children at once. The In-Reach Child Tracking System has a suggested retail price of \$XX but sells for \$XXX in Babies R Us Stores.

"We have an interesting wireless platform that fills the gap that Bluetooth and WiFi does not satisfy. We are able to do very sophisticated ranging with ultra-low power using the spread spectrum (many frequencies at the same time). If one frequency gets disturbed, we have many other frequencies to get the information across," said founder of Remote Play Inc. Ari Naim ([U.S 1](#); November, 2005).

"Parents who are always on the go will appreciate its lightweight, portable design and its parent-friendly features like the adjustable boundary setting, a tracking range of up to 300 feet, and the ability to add extra child units. They'll also enjoy peace of mind like never before knowing that In-Reach has their child covered," said Vice President of marketing Vinnie D'Alleva in a 2005 article. D'Alleva also said that the tracking system was created to assist active parents with their daily lives while taking care of their kids ([www.safety1st.com](http://www.safety1st.com); May 12, 2005).

Other related products include electronic monitoring tags that are placed on a child's article of clothing will transmit to a parent or guardian's monitor when a child moves out of range. The Child Monitor, also manufactured by Remote Play Inc. (Lawrenceville, NJ; 609-771-4445, [www.remoteplay.com](http://www.remoteplay.com)), is an advanced version of the company's TagAlert system. "The patent-pending dual ProTags are 1" by 1.5 inches and .27 millimeters thick and are fused together to transmit a secure communication between the parent's monitor. Small enough to fit inside one's palm, the jacket tag and Carabiner Clip have the ability to last for over nine months with continuous monitoring. These two units have two-range settings and will not interfere with other wireless products. The alarm will sound within a few seconds of the tag being detached or if the child leaves the pre-set boundaries. The Child Monitor sells for \$XX.XX for X,XXX units exclusively on the company's website.



The Child Guard Safety Alarm, distributed by **JSL Trading** (Vancouver, B.C; 604-325-4935, [www.purseguard.com](http://www.purseguard.com)), is a two-piece electronic monitoring device that is pinned on a child's clothing or can be worn as a necklace. "Using wafer-sized microchips produced by SMT Technology, the child's receiver is a cartoon animal-shaped transmitter that transmits signal to the adult's unit. Both units are 2" high, 1.5 inches wide and .5 inches thick. An independent auto digit-lock system is located on the child's transmitter offers about 16.7 billion digital combinations. The signal can be adjusted from three feet to 25 feet, and the receiver will beep and a LED will flash on the adult's unit if the child were to go beyond the recommended distance. The monitor can be used indoors and outdoors and operates on lithium batteries." The Child Guard Safety Alarm comes in yellow, pink and aqua and sells for about \$XX on distributor websites.

The Teddy Bear Alarm, manufactured by **My Precious Kid** (Cornelius, OR; 503-693-2832, [www.mypreciouskid.com](http://www.mypreciouskid.com)), is "a small key chain transmitter and a teddy bear-shaped child locator receiver that mounts easily to child's shoe or belt" designed for children ages one to seven and is "a great benefit for special needs children", according to



company literature. A 56 decibel beep, which can be heard 150 feet away, is emitted from the child's receiver when a button is activated on the parent's unit. The child's receiver is water-resistant and both units require "two CR2032 batteries and one mini 12V extended life battery" which are included, as stated on the company's website. The Teddy Bear Alarm sells for \$XX exclusively on the company's and distributor's websites.

The Electronic Monitoring System, distributed by **A.J. Prindle** (Louisiana, MO; 800-780-9356, [www.ajprindle.com](http://www.ajprindle.com)), is a three-unit monitoring system consisting of a receiver, a transmitter and a charging cradle. "The signal transmitter is attached to the child with the use of belt clips and monitors the child up to 15 feet. The receiver will begin to beep if the child wanders outside the 15-foot perimeter. The monitoring system lasts for about two weeks and can be recharged by placing both units on the charging cradle." The Electronic Monitoring System, which can also be used on luggage and other items, sells for \$XX.XX on the company's website.



GPS-enabled cell phones that are designed for use by children four to 10 years of age will also compete with the Wander Not. LG Migo Chaperone, manufactured by **Verizon Wireless** (Elgin, IL; 800-246-4646, [www.verizonwireless.com](http://www.verizonwireless.com)), is a GPS-enabled cell phone that allows parents to monitor the location of their children. "The Migo phone has a simplified keypad that allows you to program in four numbers, an incredible speakerphone and a dedicated emergency key. And with Chaperone<sup>SM</sup>, you can use your handset or PC to locate your child's Migo. This is the perfect phone to keep kids and parents connected," according to company literature. The phone is an all-digital phone that includes a speakerphone, four programmable parent phone numbers, a programmable emergency number button and hearing aid compatibility. The Chaperone feature allows the parent or guardian to receive an alert once the child has left a pre-programmed area such as home or school. The LG Migo Chaperone phone has about 200 minutes of talk time and weighs about 2.46 ounces, but it is not available in all areas. The LG Migo Chaperone phone is sold for \$XX with a two-year contract and \$XXX with a one-year contract on company and distributor websites as well as retail stores.



The Chaperone is a service designed for busy families to keep their lines of communication open, while also helping parents give their children more freedom by giving them a tool to be in touch. "Chaperone provides a connection between parents and their children when they are not physically together, and it gives parents an added tool for keeping in contact with their children. If the unexpected happens, a child carrying a Chaperone-enabled Migo phone will be able to quickly get in touch with parents or another responsible adult – and even emergency personnel. It is just one of the ways that Verizon Wireless is leveraging location-based technology to provide our customers with services that are relevant to their lives", according to Lee Daniels, director of product development for Verizon Wireless ([www.verizonwireless.com](http://www.verizonwireless.com); June 12, 2006).

DM-P100 and the DM-L200, manufactured for **The Walt Disney Company** (Burbank, CA; 818-560-1000, [www.disney.com](http://www.disney.com)), are the company's newest approach to "staying connected to loved ones for busy moms, dads and kids on the go", according to company literature. These two



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phones offer similar features such as a built-in camera, voice activation and web browsing. The DM-P100 does not support MP3 or Bluetooth, but both phones offer “the Family Center features, which allow parents to set spending allowances and track usage for voice minutes, text messaging, picture messaging and downloadable content, receive alerts when allowances have been reached; determine the hours of the day and days of the week when kids can use their phones; program restricted and always-on phone numbers to manage with whom kids may communicate; prioritize important family messages; and locate kids' phones with GPS capabilities. The Disney Mobile phones, which also offer roadside assistance for \$2.99 per month, require a two year contract. The DM-P100 is regularly priced at \$XXX.XX and the DM-L200 is \$XXX.XX but both come with an instant \$XX rebate offered exclusively on the company's website.

“Families have clearly told us that they have different needs than the average mobile phone user. We built a complete mobile experience that is specifically designed to meet their needs and is uniquely Disney from end-to-end. Disney Mobile will allow parents to manage their family's phone use and help teach kids responsible use,” said George Grobar, senior vice president and general manager of Disney Mobile ([www.disney.com](http://www.disney.com); June 13, 2006).

The Wherifone GPS Locator, manufactured by **Wherify Wireless Inc.** (Redwood Shores, CA; 650-551 5200, [www.wherify.com](http://www.wherify.com)), is “the world's smallest GSM/Enhanced-GPS Locator Phone,” according to company literature. “The phone has two-way voice calling and features enhanced-GPS location technology that allows it to be located in lightly obstructed areas, such as many types of wood frame buildings and vehicles, and under dense foliage. The position of a child can be located through the use of the Internet or another phone within minutes. The phone has five pre-programmable buttons and a one-touch dialing button that allows the child to call for immediate help. Basic service for the phone will start at \$XX per month and will include “three ‘locates’ -- times when people can go online and locate their child -- and 15 minutes of talk time. More expensive plans would offer more locates and talk time”, according to company literature. The Wherifone GPS Locator will be released on the market October 1, 2006 and is expected to sell for \$XXX-\$XXX on online distributor websites.



More broadly related competition includes wristwatches that can release a distress signal such as the AmberWatch, manufactured by **Vertex Group LLC** (Van Nuys, CA; 800-514-6508, [www.amberwatch.com](http://www.amberwatch.com)), which is a fully-functional wristwatch that has a built-in safety alarm. When activated by the user, the alarm emits a 115-decibel alarm, which can be heard up to 100 feet away, according to company literature. “The alarm is activated by pressing both red buttons located on either side of the watch, and it deactivates using the same buttons. The ‘super-bright’ LED lights can be seen day or night,” according to the company's website. The watch also includes a break away system, which is a back-up system that activates when the watch is forcibly removed from the wearer. The AmberWatch comes in six colors and includes a detailed guide, ID kit and one-year warranty: it sells for between \$XX and \$XX on the company's website and in retail stores.

“The AmberWatch™ is a tool that gives children a means of immediately calling attention to themselves when in a dangerous or compromising situation,” according to Amberwatch.com.

"The key to prevention is attention," said Keith Jarrett, CEO of AmberWatch. "The AmberWatch™ is in use even when you do not hear it. More than anything, this tool gives parents peace of mind knowing that their children have the means to call immediate attention to themselves if they feel threatened," adds Jarrett.

## Preliminary Patent Search

As part of our competitive assessment, we also conducted a preliminary patent search for GPS monitoring systems, electronic monitoring systems using Bluetooth technology, and electronic child monitoring systems. We found the following relevant patents:

**U.S. Patent #5,512,880** (issued: April 30, 1996; assigned: Safety1st Inc. of Chestnut Hill, MA) is for a "Wrist Baby Monitor." The patent abstract states:

"A baby monitor receiver in the form of a wristwatch. A holder including a stand and cradle is provided for the receiver so that it may be stood on a flat surface or clipped to the clothing of the person attending to the baby."

**U.S. Patent #5,900,817** (issued: May 4, 1999; unassigned) is for a "Child Monitoring System." The patent abstract states:

"A monitoring system for indicating to a supervisory individual, such as an adult, when a monitored individual, such as a child, has moved beyond a safe predefined maximum distance limit. The monitoring system includes a first electronic module suitably fixed to the monitored individual and arranged to exchange signals that are useful to determine the relative distance and direction the first electronic module is from a suitable second electronic module. The second electronic module, which is in the possession of the supervisory individual, is arranged to exchange signal information with the first electronic module and indicate to the supervisory individual information including when the distance between, and the direction of, the monitored individual. Should the distance between the monitored and supervisory individuals increase beyond the maximum distance limit, an alarm situation may be annunciated by an audio annunciator (or other suitable annunciation device). The second electronic module includes a direction display and distance display, that may be employed by the supervisory individual to locate the monitored individual."

**U.S. Patent #D, 436,878** (issued: January 30, 2001; unassigned) is for a "Child Monitoring Device." The patent abstract states:

"The ornamental design for a child monitoring device, as shown and described."

**U.S. Patent #7,042,361** (issued: May 9, 2006; unassigned) is for a "Child Monitoring, Communication and Locating System." The patent abstract states:

"A system for containing a child within a defined area, for communicating with the child, and for locating the child if the child leaves the defined area is disclosed. The containment

capability of the system is provided by a presently existing electronic pet containment system. The child wears a monitoring module that produces a signal that is transmitted back to a control unit in the possession of the parent, thus warning the parent if the child approaches or crosses the wire defining the boundary of the defined area. The parent can use the control unit transceiver to communicate with the child and the child can communicate with the parent using the transceiver within the monitoring module. If the child leaves the defined area, the control unit has locating capabilities that provide the parent with an indication as to the direction in which the child is moving and the distance between the child and the control unit."

**U.S. Patent #7,012,522** (issued: March 14, 2006; unassigned) is for a "Child Monitoring System." The patent abstract states:

"A child monitoring system for allowing an adult to be alerted when a child moved beyond a specific range from the adult. The child monitoring system includes an adult assembly transmitting a monitoring signal over freespace. The adult assembly is designed for being worn by the adult. At least one child assembly receiving the monitoring signal whereby the child assembly produces an alarm sound when the child assembly detects that the monitoring signal is traveling over a distance greater than a pre-determined safe distance. The child assembly is designed for being worn by the child whereby the alarm sound emitted by the child assembly alerts others that the child has ventured to far away from the supervising adult."

**U.S. Patent #D, 462,284** (issued: September 3, 2002; unassigned) is for a "Child Monitoring System." The patent abstract states:

"The ornamental design for a child monitoring system, as shown and described."

**U.S. Patent #7,098,785** (issued: August 29, 2006; assigned to Cosco Management Inc.) is for a "Juvenile Monitoring System." The patent abstract states:

"The present remote child monitoring system includes a plurality of transmitters for transmitting audio signals at different frequencies from different locations and at least one receiver remote from the transmitters for receiving and announcing the transmitted audio signal from the plurality of transmitters. The receiver has a first mode for sequentially announcing the transmitted audio from the transmitters and a second mode for announcing the audio from a selected transmitter."

We also found two additional patents more broadly related to the Wander Not that are listed in the Research Notes section. The full texts and illustrations of all the patents cited are included in the patent search section of the attachments.

## **Market Need and Relevant Trends**

We spoke with a few industry representatives about market need for products of this type and also investigated trends that may affect the demand for the Wander Away TattleTale. Trends



include sales of electronic child monitoring devices, Bluetooth technology, wireless tracking, GPS market, enhanced 911, child abductions and children population.

## The Electronic Child Monitoring Device Market

The market for devices such as the Wander Away TattleTale is a new and emerging market. Companies are turning to different technologies such as RFID, wireless point to point, location based services, and two-way communication and some are even combining these technologies. It is important to note that Wherify Wireless had a wristwatch similar to the Wander Away TattleTale, but it did not meet customers' demands because it was priced too high and did not offer two-way communication.

"Market numbers are not available for the wireless child monitoring device market because it is a brand new market", according to a representative from Wherify Wireless Incorporated. It is not known when market numbers will be released but I would think within the next year".

Child monitoring devices are part of the personal locator market, and trends in this larger market could be used as a proxy for the child locator segment. Personal location-based services was expected to reach \$X billion annually in revenue opportunity in North America for 2006, with European markets offering an additional \$X billion annually in location-based services, according to KinderGUARD Limited, a newly created company that uses Bio-metric Sensor and GPS Tracking devices that allows parents to locate their children ([www.kinderguard.co.uk](http://www.kinderguard.co.uk)).

Moms account XX percent of spending on consumer electronics, according to Moms to Mom Advertising Magazine ([www.m2moms.com](http://www.m2moms.com)). Urban and suburban mothers who are willing to pay for high end products, known as Yoga Mommies are interested in high-tech products such as mechanical and electronic products. "Yoga Mommies will drive the infant, toddler and preschool furnishings and accessories market to nearly \$X billion by 2010", according to a report from Packaged Facts (Packaged Facts; February 26, 2006). However, this projected forecast of infant, toddler and preschool furnishings and accessories is a result of a 2000 to 2005 continuance of two-step forwards, one-step backward growth pattern.

## Relevant Trends

### *Bluetooth Technology*

"The technology is now available in its fourth version of the core specification and continues to develop, building on its inherent strengths – small-form factor radio, low power, low cost, built-in security, robustness, ease-of-use, and ad hoc networking abilities. Three new Bluetooth enabled products are qualified every day and XX million Bluetooth units are shipping per week. The installed base of Bluetooth devices was over XXX million products at the end of 2005 and is projected to surpass X billion by the end of 2006, making it the only proven choice for developers, product manufacturers, and consumers worldwide", according to Bluetooth SIG ([www.bluetooth.com](http://www.bluetooth.com); July 31, 2006).

In addition, Bluetooth Wireless Technology is expected to release a version faster than the 2.0 which may help a product such as the Wander Away TattleTale transmit information sooner. This will notify the parent or guardian sooner if their child may be in danger. "A much faster version of Bluetooth is on the way, and officials with the Bluetooth Special Interest Group say products using the wireless protocol may be on the market as early as 2007. The next-generation Bluetooth is said to operate at similar distances (around 30 feet, best case) to today's Bluetooth 2.0 but is a lot faster, capable of wireless transfers at a rate of 480 Mbps" ([Newstex](#); June 9, 2006).

### *RFID Technology*

"RFID market containing system and services is estimated to go up from \$X.X billion in 2006 to \$XX.X billion through 2010. The value of this sector by 2016 is slated to be about \$26.2 billion. "The RFID technology is already successful in the traditional application segments such as security/access control, animal identification, automobile immobilization, and toll collection. There has been a customary rise in the RFID market over the past few years which is set to grow consistently in the near future, following the rising product awareness among end users ([www.presswire.net](#); March 8, 2006;).

"Over the past few years the RFID industry has witnessed a meteoric rise in growth. Increasing worldwide production and trade have caused the supply chain management, tracking items from the warehouse to store shelves, to become the largest segment of RFID. Given the huge potential of this technology, there has been a huge emergence of RFID in various specialty companies. RFID appears to be a production and distribution technology, but immediately beneath the surface is an ocean of IT system for data collection, storage, analysis, and distribution" ([www.presswire.net](#); March 8, 2006).

### *Wireless Tracking Technology*

The increase in cell phone companies marketing devices with GPS capabilities is a positive trend for the Wander Not. Disney has projected that the market for such devices will be between XX million and XX million customers in 2007.

A 2004 report stated that with the increase in child kidnapping cases, the interest in child locating and tracking devices has grown. "Cell phone companies in general are benefiting from child safety concerns as parents buy mobile phones for their children at younger ages than a year or two ago, analysts say. It is likely to become a crowded space," said Keith Waryas, an analyst with market research firm International Data Corp" ([www.heinzawards.net](#); March 1, 2004).

"With the upcoming U.S. release of phones that can help track children and teens, the dutiful parent's answer now can be: 'Yes, to the exact coordinates.' Parents who want to know with absolute certainty where their child is will soon be able tap into the Global Positioning System (GPS) and locate the child via a cell phone enabled with the technology. If a child does not call home, or answer the phone, or tell the truth about where he or she is, no worries. Parents can still find the kid, as long as the phone has not been ditched or turned off. Not everyone is happy with this solution, however. Privacy advocates have raised concerns that GPS-enabled phones are susceptible to hackers who could easily locate the devices and subsequently track a child with no

one else knowing. "The problem with tracking devices is that it is a ripe target for any number of sinister purposes," says Simon Davies, director of Privacy International, a watchdog group based in London. Plans to market these phones to U.S. families have been put on speed-dial" ([www.mobile-tech-today.com](http://www.mobile-tech-today.com); June 5, 2006).

One report suggests that child-tracking is the latest buzz and there is a mass market for such devices, "Tracking technology can be reassuring for children as well as their parents. Many children do like the security of knowing their parents are there – it is about peace of mind for both parent and child," says Michelle Elliot, director of the UK children's protection charity Kidscape. If in trouble, your child can simply squeeze the band, which then automatically calls your mobile, allowing your child to speak to you, or if your child can not speak, letting you listen in to what is happening (and, crucially, find out where)" ([www.taipeitimes.com](http://www.taipeitimes.com); December 7, 2005).

### *GPS Market*

The growth in the popularity of global positioning systems to locate children will also influence demand for the Wander Not. "Some industry pundits say the skyrocketing growth of portable GPS will be cut short in the next few years by new GPS-enabled cell phones, but these devices may capture only the 'casual user' segment of the GPS market, they admitted. According to Strategy Analytics, however, the casual user may be the largest potential segment of the market. The company predicts cell phones will win over XX percent of theXX million unit navigation market for the United States, Europe and Japan by 2010" ([Reed Business Information](http://www.reedbusinessinformation.com); July 3, 2006).

"Apart from the obvious fact that your child's handset could be lying in the mud, may have run out of power or been stolen (or removed), there are limitations to current phone-tracking technology: GPS will not work if the phone is in a building or underground, and clouds and trees can also interfere. While standard 'cell technology' on mobile phones works anywhere there are masts, it is less accurate than GPS" ([www.taipeitimes.com](http://www.taipeitimes.com); December 7, 2005).

GPS-enabled devices designed to track children have been available for several years, but were not in high demand. However, this type of application has been refocused and is expected to boost the market, according to ABIresearch ([www.abiresearch.com](http://www.abiresearch.com); May 31, 2006).

"Wherify is also targeting other markets, such as seniors and 'special needs family members,' for easy communicating and tracking. 'With our GPS Watch, we found that about XX percent of our subscriber base was using it not for kids, but for others, such as senior citizens," director of communication Cunningham says. And Wherify is targeting your dog and boat as well. In fact, it is developing a suite of tracking devices for valuable property and, with a GPS-studded collar, family pets who refuse to stay in one place. It is exactly this kind of migrating GPS technology, starting with kids and quickly expanding to senior citizens, pets, and property, that alarms some privacy advocates" ([www.mobile-tech-today.com](http://www.mobile-tech-today.com); June 5, 2006).

"Global Positioning Systems technology's contribution to the global economy has shown a steady growth in the last decade. The world GPS market has developed tremendously in USA and Japan owing to increased use of the technology in public safety, aerospace applications/avionics, fleet management, transport navigational systems, and others. Tracking the worldwide growth of

the GPS market, we have come out with a market research report, "World Global Positioning Systems Market Forecast (2006-2008)". According to a study by experts, with more and more affordable GPS receivers and components flooding the market, the worldwide GPS market will reach value worth \$XX billion, approximately, by 2008. A boom in the recreational sector's usage of the GPS equipment will continue. Various findings in the market research report suggest that the people tracking and handset market segments under GPS will have the largest growth rate, of approximately XX percent, by 2008. Use of digital signaling and media broadcasts has increased the demand for use of network applications fitted with GPS tools, thereby, paving the way for cheaper and reliable GPS devices. The market research report presents and evaluates the current role of governments to provide the required impetus in the global competition for GPS-related sales. An in-depth analysis of regulatory matters such as, certification of GPS in safety-of-life applications and export controls on military-grade GPS equipment is done" ([www.researchandmarkets.com](http://www.researchandmarkets.com); January 11, 2006).

### *Enhanced 911 Market*

"The 911 system is the citizen's link to emergency response. Unfortunately, this vital link that connects ordinary citizens with emergency response professionals has for too long been neglected on the federal landscape. Although Federal Homeland Security funding supports many necessary critical missions to protect the public, 911 funding is virtually non-existent. Now, Congress is starting to realize that those systems need help, too. Countrywide, local agencies are coping with rapid technological advances. Cell phones, for example, pose some unique problems. In the U.S., more than one-third of all 911 calls come from a cell phone. Yet the technology that's needed to allow call centers to know where that call comes from does not exist in 60 percent of the country" ([www.mrtmaq.com](http://www.mrtmaq.com); April 1, 2005).

"The popularity of cell phones is now being used to help solve crimes, and you may be surprised at just how well you can be tracked by having a mobile phone with you. Every time you carry a cell phone there is a signal that it puts out, which connects to a cell tower pinpointing where you are. Police are using cell phone records to connect the dots putting tracking criminals with great accuracy and putting them at crime scenes. Cell phone records not only show whom criminals called and when, but where they called from. Greg Burdett, with Andrew Corporation, said; "Now it is progressed where you can find them like a pinpoint." Burdett, a wireless technology expert, says this type of tracking is precise, "But upwards of five meters, so very accurate." Another wireless expert, Michael Amarosa, who once served as a deputy commissioner with the New York City Police Department, sees its potential in investigating criminals. Amarosa, with TruePosition, said, "And I really believe it has helped do the job, save a life and stop a crime. You do not even have to make a call to be tracked. Your cell phone establishes a connection with a nearby tower every so often" ([www.lasvegasnow.com](http://www.lasvegasnow.com); April 14, 2006).

### *Cellular Communications*

"The US market for cellular and wireless communications systems has grown by XX.X percent since 2003 to reach a value of US \$X.X billion in 2004. The US cellular phone market accounts for approximately XX percent of the global market. It has been estimated that penetration rates are as high as XX percent of all US households. Although the US market will experience

declining growth rates over the forecast period, it will still grow faster than the overall global market, thus increasing market share. The cellular/PCS device market was the largest sector, accounting for XX.X percent of sales in 2004 worth US \$X.X billion and two way pagers are now making a push into the wireless devices market. They allow users to send and receive text messages, internet e- mail and get internet based news" ([www.euromonitor.com](http://www.euromonitor.com); September 2005).

### *Child Abductions*

The Wander Away TattleTale is a device designed to prevent the abduction of children while they are out of view of their parent or guardian. The number of child abductions annually will influence demand for a product such as the Wander Not. The last report issued on the number of missing and abducted children was October 2002. The National Center for Missing and Exploited Children still uses these numbers because they have changed very little since 2002, according to a representative from the organization. The company does not know when the next report will be issued but is sure that a new report will not be too different. "An estimated XX,XXX children were abducted by a non family perpetrator in the study year, including an estimated XXX victims of stereotypical kidnappings". XX percent of those XX,XXX abducted children were last seen in front of their home or yard and about XX percent were last seen in some sort of public place. Children age six to XX accounts for about XX percent of children abducted and a child is reported missing every 40 seconds (NISMART-2; October 2002).

### *Children's Population*

The U.S. children's population appears to have been growing at a steady rate for the past five years. The population for children under the age of five to 13 years were 56,390,815 as of July 1, 2005, according to the Census Bureau (May 10, 2006; [www.census.gov](http://www.census.gov)). Following is a projection of the population for children until 2020.

<b>Population or percent, sex, and age</b>	<b>2000</b>	<b>2010</b>	<b>2020</b>
<b>POPULATION TOTAL</b>			
TOTAL	282,125	308,936	335,805
0-4	19,218	21,426	22,932
5-19	61,331	61,810	65,955
20-44	104,075	104,444	108,632
45-64	62,440	81,012	83,653
65-84	30,794	34,120	47,363
85+	4,267	6,123	7,269

In addition, based on 2004 data, the U.S. Census Bureau reports that there are 73.2 million households in the U.S. supporting children under the age of 18. American children represent a dynamic retail market, influencing an estimated \$500 billion in total retail spending ([www.census.gov](http://www.census.gov)).

## Conclusion

Overall, the Wander Away TattleTale appears to be a feasible and useful concept. However, competition exists from several products using alternative technologies such as RFID, two-way communication, wireless point to point, and emerging WAN technologies. In addition, cell phone providers have designed GPS-enabled phones and are targeting families of older children, such as kindergarten and up. A preliminary patent search identified patents with similar claims and features, but was yet unassigned. Trends appear to be favorable as the market for personal location based services is expected to reach \$X billion. Public perception that child abductions are increasing and the related attention by the media appears to be driving demand for locator devices. The technical reviewer pointed out some limitations with the design in regards to battery weight; some design modifications were suggested to improve the product's benefits to both users. It is also important to keep in mind that one competitor has already exited this market. Relevant technologies are also expected to change quickly, in regards to both capabilities and pricing. In light of such, further investigation into user and/or distributor reactions to the proposed product configuration is recommended prior to significant investment.

## Research Notes

### Contacts

The following companies or organizations were cited in the report:

<u>Company</u>	<u>Location</u>	<u>Phone Number</u>	<u>Web Site</u>
Wherify Wireless, Inc.	Redwood Shores, CA	650-551 5200	<a href="http://www.wherify.com">www.wherify.com</a>
Bluespan, Inc.	Round Rock, Texas	512-244-2866	<a href="http://www.ion-kids.com">www.ion-kids.com</a>
Vertex Group, LLC			<a href="http://www.amberwatch.com">www.amberwatch.com</a>
Safety1st	Columbus, IN	800-544-1108	<a href="http://www.safety1st.com">www.safety1st.com</a>
Remote Play, Inc.	Lawrenceville, NJ	609-771-4445	<a href="http://www.remoteplay.com">www.remoteplay.com</a>
JSL Trading	Vancouver, B.C	604-325-4935	<a href="http://www.purseguard.com">www.purseguard.com</a>
My Precious Kid	Cornelius, OR	503-693-2832	<a href="http://www.mypreciouskid.com">www.mypreciouskid.com</a>
A.J. Prindle	Louisiana, MO	800-780-9356	<a href="http://www.ajprindle.com">www.ajprindle.com</a>
Verizon Wireless	Elgin, IL	800-246-4646	<a href="http://www.verizonwireless.com">www.verizonwireless.com</a>
Walt Disney Company	Burbank, CA	818-560-1000	<a href="http://www.disney.com">www.disney.com</a>
Vertex Group LLC	Van Nuys, CA	800-514-6508	<a href="http://www.amberwatch.com">www.amberwatch.com</a>

The following companies or organizations were contacted but did not provide information for this report:

<u>Company</u>	<u>Location</u>	<u>Phone Number</u>	<u>Web Site</u>
Toys R Us	Wayne, NJ	973-617-3500	<a href="http://www.toysrus.com">www.toysrus.com</a>

### Patent Search

The following patents appear to be broadly related to the client's proposed device. The full texts and illustrations of these patents are in the Patent Search section of the attachments.

<u>U.S. Patent #</u>	<u>Description</u>
6,573,835	"Child Monitoring Device"
D, 438,132	"Child Monitoring Device with Strap"