A Survey on Child Safety Wearable Device to Prevent Child Trafficking Using Arduino

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ABSTRACT

Currently a child's security is a crucial space of concern. This paper is developed to rectify the troubles parents relating to their child security. In keeping with a story from 2014, about 135,000 kids are calculable to be trafficked in India annually. Trafficked children are sold-out into slavery, domestic slavery, beggary, and therefore the sex trade. This paper provides the conception of sensible wearable devices for our little ones. And to stop kid trafficking. One amongst the most precedence over this device is that it provides us the tracing details of our little ones. And it doesn't require a smart phone or a technician person to know and use it. The motive of this device is to assist find their kids with none difficulties. At the moment there are several tracking device that helps us to note our children's activity with ease and additionally notice the kid using Wi-FI and Bluetooth. However Wi-Fi and Bluetooth seem to be unpredictable medium of communication between the parent and kid. So the main focus of the paper is to possess an SMS text enabled communication between the child's wearable and also the parent because the GSM mobile communication is nearly present everyplace. The parents will send a text with specific keywords like "LOCATION" "TEMPERATURE" "UV" "SOS" "BUZZ" ETC. The tracking device can reply back providing the correct location of the kid and it will navigate through google maps. So this paper provides parents with a way of security for his or her kid in today's world.

Keywords : Child Safety Wearable Device, Arduino, Trafficked children, Lynceus2Market, RFID, MASS, RSSI, DCC, ATNAC

I. INTRODUCTION

Fishing is one of the chief sources of food and income for almost all coastal lands irrespective of its geological location in the earth. Since it has an important role to play in the economy of a country, there is no doubt that neighboring countries sharing the same oceans frequently engage in disputes in regards to ownership of the area. This has resulted in deep problems to the fishermen community residing in the coastal regions of these countries. Often, we hear in the news and see in the papers, one article or the other describing the issues faced by these fishermen in their day to day commute to the oceans. In order to solve this issue, the governments of these countries decided to have a common territory of ocean as international waters and that it would act as the region common as well as a separation between the two lands. But even this did not prevent the fishermen from unknowingly wandering off into the other country's waters. Hence, there is a strong need to device methods to prevent this from happening and save the fishermen from severe punishments and border disputes. Our model helps to ensure the

location of the fishing boats through a new technology using radio waves.
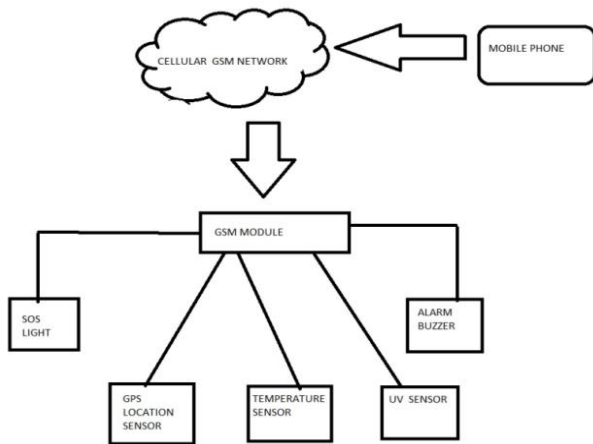
II. LITERATURE SURVEY

"Lynceus2Market- An innovative individuals localization system for safe evacuation of huge traveler ships"
An innovative individual localization system for safe evacuation of huge traveler ships

This paper is mainly based on the maritime disasters to control the cause, during emergency evacuation of large passenger ships. The Lynceus2Market project addresses this challenge through delivering a revolutionary operational system for safe evacuation supported innovative people localization technologies.

This technology will be provided with SME –driven market segments of smoke alarm, fire detection systems, life saving equipment, emergency management decision support systems and assistive search and rescue equipment.

Y. Zhou, C.L. Law and J. Xia, "Ultra low-power UWB-RFID system for precise location-aware applications," in Wireless Communications and Networking Conference Workshops (WCNCW), pp. 154–158, April 2012.

Ultra low-power UWB-RFID system for precise location-aware applications
Ultra low-power radio-frequency identification (RFID) tag with preciseness localization is commonly the sanctioning technology for location-aware detector applications. The RFID tag could be a transmitter comprising of a micro-controller board and a UWB impulse radio board. Power saving and precision localization is achieved by improvement of the circuit style for immoderate short pulses further as system design and operation.

Petrovic and R. Kanan, "Extremely low power indoor localization system," in IEEE 8th International Conference on Mobile Adhoc and Sensor Systems (MASS), pp. 801–806, Oct. 2011.

Extremely Low Power Indoor Localization System
In this paper style, implementation and testing of an very low power and low price wireless detector network for observing person or object position in an interior atmosphere are mentioned. The localization relies on the standard received signal strength intensity (RSSI) technique. The very low-power feature is achieved by employing a new Duty-Cycle dominant (DCC) technique. The DCC technique relies on the frequency Identification (RFID) principle to wake-up the mobile unit at the correct time and save energy once it's not used.

S. Nasrin and P. 1. Radcliffe, "Novel protocol allows DIY home automation," Telecommunication Networks and Applications Conference (ATNAC), Novel Protocol Enables DIY Home Automation.

In this paper, we tend to describe a brand new design for a home automation system that is constructed on novel network protocols.

The new system permits a user or home-owner to buy off the shelf devices and management them by a

computer or mobile device terribly} very easy manner.

The system does not require expert configuration or a central controller therefore the cost will be significantly reduced. The key enabling technology that makes this possible is an XML definition

Of the device capabilities, show needs, and management signals.

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Designing and Performance analysis of GSM/GPS based mostly heavier-than-air craft following Device

Low flying aircrafts are always powerful to trace because of the radar horizon limitation. However an aircraft is often to be tracked for the security purpose .The combination of world Positioning System (GPS) and international System for Mobile Communications (GSM) also can perform the duty satisfactorily. During this work, two GSM networks were utilized to trace low flying aircrafts in several routes. The device style is projected basing on the experimental results of chase.

Ellen W. McGinnis*, Ryan S. McGinnis*, Member, IEEE, Maria Muzik, Jessica Hruschak, Nestor L. Lopez-Duran, Noel C. Perkins, Kate Fitzgerald, Katherine L. Rosenblum

Movements indicate threat response phases in children at-risk for anxiety

Temporal phases of threat response similarly as Potential Threat (Anxiety), Acute Threat (Startle, Fear), and Post-threat Response Modulation area unit referred to as underlying markers of tension disorders.

Objective measures of response throughout these phases could facilitate determine kids in danger for anxiety, we tend to propose an alternate technology, an inertial measurement unit (IMU), that permits non-invasive activity of the movements related to threat response.

Internet of Things: a definition & taxonomy: Bruno Dorsemaine, Jean-Philippe Gaulier, Jean-Philippe Wary and Nizar Kheir

Internet of Things: a definition & taxonomy

The Internet of Things (IOT) has varied fields of application including health care, resource management, asset tracking, etc. depending on the utilization case, varied technologies like RFID, Wireless sensing element Network (WSN) or smart Objects is used. With each of these comes a specific vision of what the IoT and connected objects are and – to our information – there's no global image of the IoT.

Jun Zheng David Simplot-Ryl Chatschik Bisdikian Hussein T. Mouftah

GUEST EDITORIAL – THE INTERNET OF THINGS

The growth of the internet shows no signs of retardation down and it steady becomes the cause of a brand new pervasive paradigm in computing and communications. This new paradigm enhances the standard internet into a smart net of Things (IoT) created around intelligent interconnections of numerous objects within the physical world, like vehicles, cell phones, habitats, and habitat occupants. It utilizes affordable information gathering and dissemination devices, like sensors and RFID tags, that facilitate fast interactions among the objects themselves as well because the objects and persons in anyplace and at any time. IoT isn't a mere extension of today's net or an online of net systems.

Virtual Rehabilitation with Children. Challenges for clinical adoption. By Stephanie Glegg. Virtual Rehabilitation with Children

The main draw of virtual rehabilitation is that the capability it allows clinicians to regulate the characteristics of the virtual surroundings whereas modifying the degree of challenge to suit individual patient desires. As an example, by reducing the amount and speed of visual stimuli, removing visual clutter and additive feedback, and directional stimuli to 1 aspect of the body only, therapists will modify a child with a brain injury to participate in virtual reality in a way that optimizes success and recovery. Augmented feedback (e.g., visual, auditory, and haptic) and opportunities for motivating repetitive practice produce this approach considerably appealing for motor learning applications

ChildGuard: A Child-Safety Monitoring System Zhigang Gao, Hongyi Guo, Yunfeng Xie, and Yanjun Luo Hangzhou Dianzi University Huijuan Lu and Ke Yan China Jiliang University.

ChildGuard: A Child-Safety Monitoring System

The ChildGuard system exploits mobile devices to observe the period of time movement of unsupervised children. It additionally sends reminders and alarms to kids and notifies guardians of abnormities in a child's routine. for instance, two typical measures embody hiring manned guards or using video surveillance, but guards aren't practical or affordable when it involves monitoring kids, and video surveillance systems typically have blind zones. to that end, ChildGuard may be a security methodology for observation kids that uses present computing devices, like smartphones or wearable devices—which are growing in each quality and performance.

III. COMPONENTS REQUIRED

A. GPS

The Global Positioning System (GPS) is a U.S. space-based global navigation satellite system.

It provides reliable positioning, navigation, and temporal order services to worldwide users on a nonstop basis day and night, anyplace on or close to the planet.

B. GSM MODEM

GSM electronic equipment may be wireless electronic equipment that works with a GSM wireless network.

A wireless modem behaves like a dial-up modem. The main distinction between them is that dial-up electronic equipment sends and receives information through a set telephone line whereas wireless electronic equipment sends and receives information through radio waves.

The operating of GSM electronic equipment relies on commands.

C. LCD

LCD (Liquid Crystal Display) screen is associate electronic show module and notices a large vary of applications.

A 16x2 {lcd liquid crystal display |LCD| digital display |alphanumeric display} display is incredibly basic module and is extremely unremarkably employed in varied devices and circuits.

These modules area unit most popular over seven phases and alternative multi segment LEDs.

The reasons being: LCDs are economical; easily programmable.
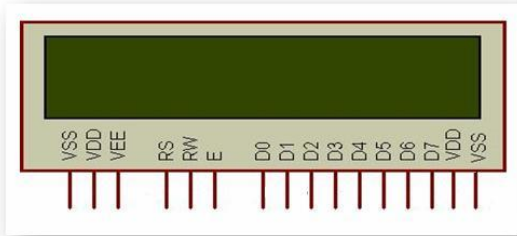
D. TEMPERATURE SENSOR - The LM35

The LM35 is associate degree computer circuit detector which will be accustomed live temperature with associate degree electrical output proportional to the temperature (in oC)

The LM35 - An Integrated Circuit Temperature Sensor
Why Use LM35s To Measure Temperature?
1. You can measure temperature more accurately than a using a thermostat.
2. The sensor circuitry is sealed and not subject to oxidation, etc.

VCC
2.7-5.5V in
Analog voltage out
201mV =20.1C
Ground
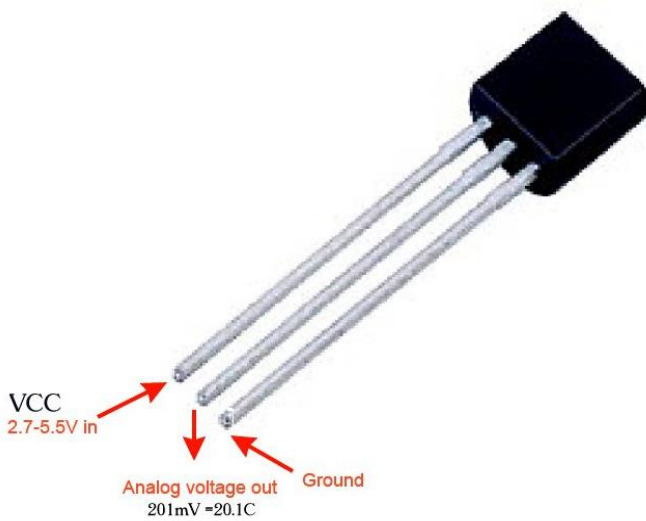
E. GAS SENSOR

The sensors contain two in contact with an electrolyte.

The electrodes are usually invented by fixing a high extent valuable on to the porous hydrophobic membrane.

The perating conductor contacts each the solution and also the close air to be monitored typically via a porous membrane.

F. ARDUINO UNO

Arduino/Genuino Uno is a microcontroller board supported the ATmega328P. It has fourteen digital input/output pins (of that six will be used as PWM outputs), six analog inputs, a sixteen MHz quartz, a USB association, an influence jack, an ICSP header and a reset button. It contains everything required to support the microcontroller; merely connect it to a laptop with a USB cable or power it with a AC-to-DC adapter or battery to urge started.

G. ARDUINO IDE:

The ATmega328 on the Arduino/Genuino Uno comes preprogrammed with a boot loader that allows you to upload new code to it without the use of an external hardware programmer. It communicates victimization the first STK500 protocol (reference, C header files).

H. EMBEDDED C

Embedded C may be a set of language extensions for the C programming language by the C Standards committee to handle commonality problems that exist between C extensions for various embedded systems.

Historically, embedded C programming needs nonstandard extensions to the C language so as to support exotic options like fixed-point arithmetic, multiple distinct memory banks, and basic I/O operations.

I. Power Supply:

This section describes how to generate +5V DC power supply
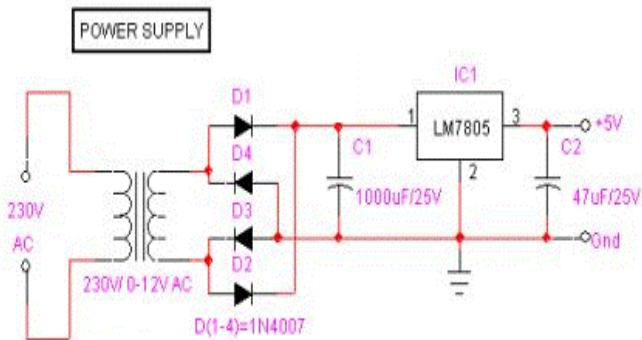
IV. CONCLUSION AND DISCUSSION

This paper briefly analyzes and reviews the related work carried out for child safety. When compared with all the technologies and paper we finally prefer using SMS text enabled communication between the child's wearable and also the parent because the GSM mobile communication is nearly present everyplace. The usage of this can make us track the child's location easily. Only GSM/ GPS is used to track the child. It provides parents with the real-time location, temperature around their child, UV radiation and SOS light with alarm buzzer for their child's surroundings and the ability to locate their child or alert someone in acting to rescue or comfort the child. The smart child safety wearable can be enhanced much more in the future by using highly compact Arduino modules such as the LilyPad Arduino which can be sewed into fabrics. Also a more power efficient model will have to be created which will be capable of holding the battery for a longer time.

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[12]. Md Imdadul Hoque,1,* Abdullah Al Amin,1 Md Jumshadur Rahaman,1 and Mohammad Hossam-E-Haider1 1Electrical Electronic & Communication Engineering Department Military Institute of Science and Technology, Dhaka, Bangladesh "Designing and Performance Evaluation of GSM/GPS Based Helicopter Tracking Device"

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