

IoT-Based Safety Surveillance System for Children

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Abstract: *In the real world, child protection is a big question for every person. Parents always assume that their children live in a safe area where they can spend their time and mind without any problems. However, the media comes with almost as many problems. This difficulty monitors the use of IoT components and sensors to test in the child's environment whether people are walking around with inappropriate behavior. If the children process them, the gadget will provide a notification approximately the status of someone following the child. By observing children, parents can determine what the problem is and how they could help the child solve such problems. It is recommended to use the pulse and vibration sensor together with the blood pressure sensor to test if the child is in any unusual situation. By measuring different projects and making appropriate choices, people can help save children.*

Keywords: Ratchet Mechanism, Kinetic Energy, renewable energy resources

I. INTRODUCTION

According to the World Health Organization, the idea of fitness is primarily based on the ability of each person to perform activities that apply to them. A fundamental goal of occupational therapy is to encourage clients to participate in everyday existence. Children's lives take place specifically at home and at the faculty.

Homework is an activity that affects children's participation in the family and at school. Academic success is usually a task that youngsters and children have to conquer. These challenging situations, if successfully overcome, contribute to cognitive, emotional and social maturation.

Information and Communication Technology (ICT) allow you to better deal with these educationally demanding situations. If these children have difficult conditions to manage this interest, cognition or various difficulties, this technological assistance can become vital for them, as well as for maturation and healthy participation.

In addition to autonomously addressing educational progress, ICTs facilitate connections with other people. This can be a high-quality help both to obtain academic wishes and to correct the child's existing problems. Focusing on youth with problems and their therapy, the possibility of observation and therapeutic intervention in an herbal environment (especially in the home environment) is in great demand in the academic and medical context.

II. LITERARY STUDIES

TITLE: The Smart School Bus: Providing a Safe Course for Schools

AUTHOR: Jafrul Islam Sojol; MD Saqib Alam; Nazmul Hossain; Tamannaah Motahar

Content:

An important part of providing quality education to young people is ensuring their safety from school to home. We've perfected a low-tech, high-performance faculty bus system using a diffusion of proprietary and off-the-shelf components. This article discusses the hardware expertise of the school bus monitoring gadget and protecting college students on the faculty bus.

Title: Analysis of the arrangement of child safety seats in a car.

AUTHOR: Hui Zhu; Yudong Zhang

CONTENT:

As motorbikes make their way into more and more families, children are staying in the car longer. Gradually, people's interest is attracted to the fact that there are many problems with young people who are their victims road site visitors injuries. Thus, the kid seat will become a very powerful and flexible product honestly due to the fact it is able to clear up those issues. The article analyzes the importance of the design of the kid seat for the auto, on the identical time, it

proposes the primary standards and a optimistic method to enhance the comfort and safety of children. Finally, he similarly explained the policy of baby protection with exquisite examples.

TITLE: Safety of child travelers in the United Arab Emirates: an overview

AUTHOR: Kassim Abdulrahman Abdullah; Abdel Hamid Ismail Murad; Abdulaziz Uba Muhammad

CONTENT:

Road traffic accidents are the leading cause of loss of life, morbidity and disability among children in and around the UAE and pose a major burden on the financial system and public health. Correct use of a child restraint system can significantly reduce injuries and deaths of young people on motorcycles in the event of an accident. Despite the continuous and constant call for the passage of safety regulations for more than three long years, studies on the key areas of child passenger safety that are essential to defensive regulations, laws, certifications and guidelines are sorely lacking. No studies have yet been conducted on infant anthropometry and car protection, adolescent injury biomechanics, and numerical models and simulations of child restraint injuries.

NAME: Multi-sensor wearable protective device for toddlers

AUTHOR: Ushashi Chowdhury; Pranjal Chowdhury; Surav Paulus; Anvesha Sen; Parfo Against Sarkar; Shubhankur Basak; Abari Bhatta

CONTENT: Today we see that human life is changing very quickly. Moreover, urban life will be very busy every day. So, in the daily hustle and bustle, it is very difficult for father and mother to close their children. This article is about a smart wearable device that includes a wristband that constantly monitors a child to keep them safe. If there is any problem, it alerts dad and mom via mobile phone so that one can move immediately. This article uses SMS text content messages in a verbal exchange. Parents can send an SMS with some keywords and the device will respond. The nearby device can determine the proximity of the child, measure the child's body temperature and environment, humidity and pulse.

III. EXISTING SYSTEM

- In this regard, many developers have provided you with innovative applications. Some of these programs are: Codes like *ninety one# are used for emergency offers that can be monitored by the police. It has launched a free child safety mobile utility 'Help Me Mobile' to help individuals who want help.
- These programs require one click to complete this challenge. But while the young are in trouble, the kids sometimes aren't, the young adults pick up the smartphone and pull the trigger.

IV. DISADVANTAGES OF EXISTING SYSTEM

- The entire existing equipment consists of GPS and GSM, which makes the circuit difficult, making it impossible for miles to pick up a module and press a button in a second.
- Using GSM and GPS will increase the cost of cells for everyone
- Regular maintenance is required.

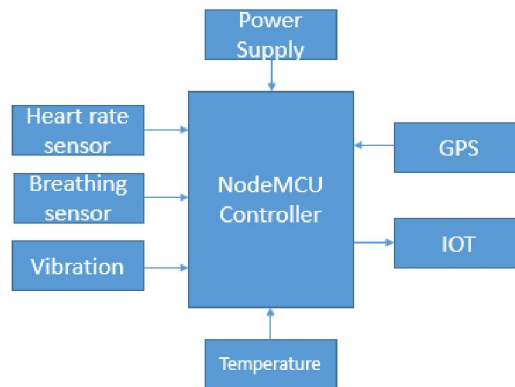
Proposed system:

- For safety reasons, we use several sensors including vibration, temperature, respiration, coronary heart rate and GPS. GPS is used for positioning.
- Coronary heart rate sensor is used to determine the heart rate, if the critical level indicates that the coronary heart rate fee is too high, it will send an alert to the teacher, mother and father via the Internet.
- If any problem occurs, which means the slope and vibration will increase, it will send a warning message to the police in addition to home use of IoT.

Advantages:

- The module is connected to the Internet, so you can manipulate it anywhere, the module is not always far away
- All sensors are small and portable for use in any environment.
- Ease of use, value, accessible to all.

V. BLOCK DIARAM



Component required:
HARDWARE USED:

- NODEMCU
- Heart rate sensor
- Breathing sensor
- Pressure sensor
- Temperature
- GPS

SOFTWARE USED:

- Arduino IDE
- Built-in C

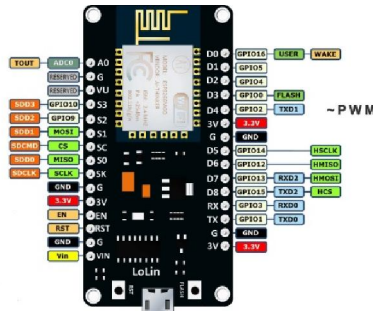
MCU NODE

NodeMCU is an open IoT platform for delivery.[4][5].if Systems ESP8266 Wi-Fi SoC and includes hardware on the ESP-12 module.

The word "NodeMCU" by default refers to the firmware, now not the CPU. It is primarily based on the eLua layout and the Espressif Non-OS SDK for the ESP8266. It uses many open-source tasks such as lua-cjson[8] and spiff.

NodeMCU quickly after discharging ESP8266. On December 30, 2013, Espressif Systems[6] started production of the ESP8266[10]. The ESP8266 is a Wi-Fi SoC built into the Ten silica Xtensa LX106 core, widely used in IoT programs (see related projects). NodeMCU was released on October 13th, 2014, while Hong Kong donated the primary nodemcu firmware file to GitHub. Two months later, the task expanded to an open hardware stack with developer Huang R. Gerber's message known as devkit v0.Nine. Later this month, Tuan PM ported the MQTT client library from Contiki to the ESP8266[13] SoC platform and addressed the NodeMCU challenge after NodeMCU became capable of accessing the IoT MQTT protocol via Lua MQTT jamming. Another principle exchange took place on January 30, 2015, while Devsaurus ported u8glib[14] to the NodeMCU layout, allowing the NodeMCU to handle LCD, Screen, OLED and VGA presentations without problems.

In the summer of 2015, the creators abandoned the firmware entry and received a group of unbiased individuals. As of summer 2016, NodeMCU consists of more than forty specific modules. Due to limited resources, customers must select modules that meet their specifications and create firmware tailored to their wishes.



HEARTBEAT SENSOR

A character's heartbeat is the sound of the valves in their coronary heart as they contract or expand blood from one aspect to another. Beats per minute (BPM) is the heartbeat, and the beat that can be felt in the artery near the pores and skin is the heartbeat.

There are ways to measure pulse

Manual approach: The pulse can be compressed by manually checking the heart rate in places: at the wrist (radial pulse) and at the neck (carotid pulse). The technique is to put two fingers (index and middle) on the joint (or neck under the artery) and count the number of pulses in 30 seconds, then multiply this variety by 2 to get the coronary heart price. But the tension should be very little and the finger should move up and down until you feel a pulse.

Use not unusual feeling. Heart rate can be measured based on the alternation of optical power as light is scattered or absorbed on its way through the blood as the heart changes.

Buzzer:

What is a Buzzer: Working & Its Applications

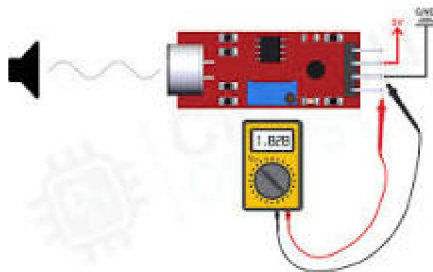
There are many ways to communicate between a person and images. A high-quality way of proportional zing the sound is to use a buzzer. So as part of making plans, being tech savvy with configuration makes it a lot easier. So, this newsletter takes into account a top view of the sound big instrument together with the protector or bombardier and his pack work.

Sound Sensor:

The sound sensor is clearly a small circuit board that mixes the microphone (50Hz - 10kHz) and converts the sound waves into electrical alerts in the processing circuit. The sound sensor board consists of 3 important elements, namely: Electret microphone. Sensitivity. Comparator

A sound sensor is a small board that combines a microphone (50Hz-10kHz) and some processing circuitry to transform sound waves into electrical signals. This electrical character is converted to the built-in high-precision digitizing comparator

LM393 and must be placed on the OUT pin.



TEMPERATURE SENSOR

The most variable ambient temperature is measured. This is to be anticipated as temperature affects the maximum of physical, digital, chemical, mechanical and organic systems. Some chemical reactions, organic techniques, or even digital circuit paintings are delicate within a limited temperature range. Temperature is one of the maximum common measured quantities, so it is not always sudden there there are many methods to measure it.



can be done either by direct contact with a heat source, or remotely, without direct contact with the source, using energy as opposed to radiation. There are a wide variety of temperature sensors on the market today, including thermocouples, resistance thermometers (RTDs), thermistors, infrared sensors, and strong sensors.



Pressure sensor

A voltage sensor measures the pressure, usually of gases or beverages. Pressure is an expression of the force required to stop the growth of a fluid and is normally expressed as pressure per unit area. A voltage sensor normally transmits; generates a signal primarily based on the implemented load. For the purposes of this text, any such signal is electrical.



Global Positioning System (GPS)

The modes are divided into families: FGPMOSLx and FGPMOPAx series (the number of models is indicated by x). The primary difference between the two homes is the inclusion of a smart layer antenna. The PAX comes with a ceramic antenna, while the SLx does not. These GPS modules are the right video GPS solution for excellent positioning and speed determination and accuracy as well as great comfort and tracking capabilities in urban environments. GPS module from MediaTek Inc. GPS, the world's leading virtual media company and the world's largest green employeecentres.



IOT:

The format of this chapter is as follows: Section 1.1 presents the purpose of this thesis. Section 1.2 states the objectives and questions of the observer. Section 1.3 offers the steps needed to achieve our desires. Section 1.4 proposes a file structure.

The point of the future of the Internet is to provide an infrastructure that will provide access to information approximately plant resources on the spot and recognize its residence. Physical items can be implemented with different application domain names including fitness, warehouse management, etc. Each software domain can have different types of physical devices. Each physical instrument may also have its own personal specifications that should be used to interact with it. To achieve his fateful purpose, he now desires an internet imaginative and prescient who could facilitate access to statistics.

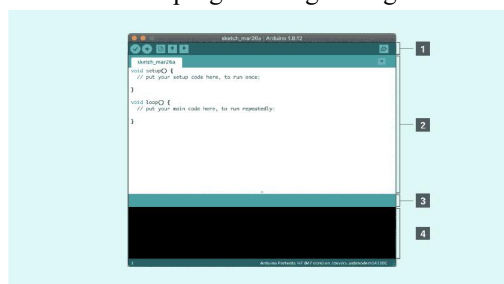
The phrase "internet of things" includes words, especially "Internet" and "Things". The Internet refers to a worldwide network infrastructure with scalable, proprietary capabilities primarily based on interoperable and standardized communication protocols. Physical gadgets are gadgets or minds or virtual gadgets, minds or stats that have identities, bodily sensations, and digital personalities and use sensible equipment [1]. For example, a digital item can be an aggregate unit of sensor nodes that includes metadata for sensing and discovering the corresponding sensor nodes. So IoT refers to things that could offer statistics from the physical environment through the Internet.

The hub is a central interface between the hardware layer and the application layer that is charged for interacting with devices and manipulating data [2]. Middleware is intended to provide a single programming version for each other's devices. We respond to the respective challenge of personal heterogeneity and problems of distribution as soon as they encounter mutual quirks [3].

ARDUINO IDE

Arduino is a device for building computing systems that could sense and control more of the bodily international environment than your computing device. It is an open body computing platform primarily based on a simple microcontroller board and a development environment for writing a software program for that board.

Arduino can be used to layout interactive objects by receiving input from various switches or sensors and controlling various lights, motors and other physical manifestations. Arduino initiatives can be standalone or with a web-based software program for your computer (e.g. Flash, Processing, MaxMSP). Tables can be assembled by hand or purchased pre-assembled; The Arduino is an implementation of the Wiring programming language, much like a physical computing platform primarily based on multimedia programming strategies.



VI. APPLICATION

- Can be used for women's health.
- They will have to examine their children's tracks during the study.
- It will be installed in the vehicle monitoring and protection equipment.
- Can the existence of song in the wild.

VII. CONCLUSION

In each of them, the concept of IoT, child safety, problems and wishes of using a child lock are undoubtedly explained. Some initial studies included the development of an entirely smart IoT-based child safety bracelet. It helps parents manage their children remotely. If the situation arises, you can send mom and dad a notification if you want to take action. This can help save youth and reduce crime. However, the designed device is not always reliable enough and no longer contains enough functions to control a mobile phone. Therefore, destiny spells upload additional features, software, packages and hardware to make the gadget paintings higher for the intended theme while ensuring the safety of children.

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