**Internet of Things – B7-1A3E**

**1.)Intelligent Child Safety System using Machine Learning in IoT**

**Devices:**

-Aparajith Srinivasan, S Abirami, N Divya, R Akshya, BS Sreeja

2020 5th International Conference on Computing, Communication and Security (ICCCS), 1-6,2020

**In this Article:**

● Child safety and tracking is of utmost importance as children are the most vulnerable.

● With increasing crime rates such as child kidnaping, child trafficking, child abuse and so

on, the need for an advanced smart security system has become a necessity.

● With this motivation, a self-alerting “INTELLIGENT CHILD SAFETY SYSTEM

USING MACHINE LEARNING IN IOT DEVICES” is developed to aid parents to

monitor and track their children in real time as an alternate to stay beside them.

● This system is intended as an everyday wearable device on the child, in the form of a

wrist band, hand glove, arm band or a belt. The system is designed to continuously

monitor the location and body vitals of children.

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**2.)Smart School Bus Tracking: Requirements and Design of an IoT**

**based School Bus Tracking System:**

-Hina Gull, Dalal Aljohar, Reem Alutaibi, Dalia Alqahtani, Muna Alarfaj, Rahaf Alqahtani

2021 5th International Conference on Trends in Electronics and Informatics (ICOEI), 388-394, 2021

**In this Article:**

● In many countries, school buses are considered as easy options for parents to transport

their children to their schools.

● However, the safety of children has always been a concern for parents, as most of them

consider it a highly unsafe way of transportation. Nevertheless, with the advent of

technology it has been observed that mobile computing and IoT has provided us profound

solutions for safe transportation of school going children.

● Proposed IoT based Bus Tracking System, will introduce a tracking website and an

android application for the school admin, drivers of the bus and the parents.

● Proposed system will provide the admin with the charge of adding a new bus driver and

new student to the driver list. Furthermore, the application itself will generate a fixed QR

code for each student that will be placed on a card that contains the student&#39;s personal

information.

● Also, the proposed system will track the bus location through the driver&#39;s mobile.

**3.)IoT-Based Smart Band For Tracking Position And Monitoring**

**Conditions Of Children:**

-Lathifah Arief, Taufik Fadhlul Hadi, Tri A Sundara

2020 International Conference on Information Technology Systems and Innovation (ICITSI),

111-115, 2020

**In this Article:**

● Supervision of children on a 24-hour basis is not easy, with parents who are often busy

always coming and going, making children often not always be supervised directly by

parents.

● One way to always supervise the children directly is by making sure the child is always

near the parents.

● But this method is not good because children need to establish a connection with the

outside world and interact with other children.

● With the development of technology, a device is made to enable parents to monitor their

children.

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children.

● This device is made along with the mobile application as a display the information about

the children and their situation by collecting data from the database, transmitted by the

device.

● Using a pulse sensor to capture children&#39;s heartbeat with accuracy up to 85% with 5 data

comparison between sensor and stethoscope and 15 device&#39;s location data with average

deviation as far as 14.2 meters.

**4.)Child monitoring and safety system using WSN and IoT technology:**

-P Poonkuzhlai, R Aarthi, Yaazhini VM Annals of the Romanian Society for Cell Biology, 10839-

10847, 2021

**In this Article:**

● This paper presents the design and implementation of a portable IOT-based safety and

health monitoring system for children through a sensor embedded health monitoring

device for safety and emergency services.

● It is known that technological advancements are increasing at a faster pace.

● But the utilization of technologies in various sectors is very low. We know that people of

different age groups face different difficulties.

● But the security for children is very low. There are a lot of cases registered regarding

child safety.

**5.)Smart and secure IoT based child monitoring system:**

-Dipali Badgujar, Neha Sawant, Dnyaneshwar Kundande

Int Res J Eng Technol (IRJET) 6 (11), 2019

**In this Article:**

● IOT is getting upgraded day by day and its security is also upgraded. In this proposed

system, we are mainly focusing on child remote monitoring system also we are using the

radar devices as well as obstacle sensors which will detect the alert when the child enters

the danger zone or else he/she is approaching towards harmful object then alert will be

given to the caretaker through the mobile using an alarm or notification.

● For sensing purpose we are using Waterproof Ultrasonic Obstacle Sensor which are

placed in the simple locket that is given to the baby so that locket will give alert to the

caretaker through the mobile and for battery backup we are using solar panel through

which the energy will get stored in the care taker’s shoes and this energy will be

dependent on the steps covered by the caretaker.

**6.)Multi-sensor Wearable for Child Safety:**

-Ushashi Chowdhury, Pranjal Chowdhury, Sourav Paul, Anwesha Sen,

Partho Protim Sarkar, Shubhankur Basak, Abari Bhattacharya

2019 IEEE 10th Annual Ubiquitous Computing, Electronics &amp; Mobile Communication

Conference (UEMCON), 0968-0972, 2019

**In this Article:**

● Now-a-days we can see that human life is becoming very fast.

● Moreover, city life is getting very busy day- by-day. So in the daily busy schedule it is

becoming very difficult for the parents to monitor their children closely.

● This paper discusses a smart wearable device like a wristband which tracks the child

from time to time to ensure their safety. If any problem occurs it would alert parents

through the cell phone so that they can take immediate action.

● This paper focuses on SMS text enabled communication. Parents can send SMS with

some keywords and the device replies back.

● The device can detect the child&#39;s approximate location, it can detect the body temperature

and the surrounding temperature, humidity and also the heartbeat of a child.

● For the emergency situation, the device would have some measures like an alarm buzzer,

SOS light which will notify the bystanders to help the child.

● So this paper is all about the safety and security of a child to help them to recover from

any type of difficulty.

**7.)Design and implementation of a children safety system based on IoT technologies:**

-Leonardo D&#39;Errico, Fabio Franchi, Fabio Graziosi, Claudia Rinaldi,

Francesco Tarquini2017 2nd International Multidisciplinary Conference on

Computer and Energy Science (SpliTech), 1-6, 2017

**In this Article:**

● In this paper a system for increasing children&#39;s safety is proposed.

● The focus is on the daily route from home to school and vice versa, assuming the use of

school buses.

● IoT paradigm is exploited together with different localization techniques i.e. RFID and

GPS, in order to design a solution for parents willing to make certain of their child&#39;s

following the main steps to school or home, i.e. taking the school bus and entering school

or leaving school and entering the school bus.

● In this paper the applicability of RFID technology efficient tracking capabilities is tested

in children&#39;s tracking and monitoring during their trip to and from school by school buses.

● The proposed solution is discussed in terms of technologies and architecture and the first

prototype is presented.

● Finally a test phase is planned to verify the correct operation of the system.

**8.)A hybrid model on child security and activities monitoring system**

**using iot:**

-R Kamalraj, M Sakthivel

2018 International Conference on Inventive Research in Computing Applications (ICIRCA),

996-999, 2018

**In this Article:**

● In the real world, children &#39;s safety is a huge question mark in everyone&#39;s mind. Parents

always expect their children to live in a secure place where they can spend their time and

mind without any problem. But, typically half of them are facing so many issues.

● This issue can be monitored by using IoT components and sensors to check in the child

environment whether people with unaccepted behavior are moving.

● If children close with them, then the system has to give an alert message that someone stands with the child.

● By tracing the locations of the children, the parents can locate where the problem is and

how they can help the child from such issues.

**9.)IoT Enabled Children Safety System**:

-Mr Vinod Mane, Durgesh Musale, Rohan Joshi, Aditya Toney, Anand Pande,Shashank Kohade

**In this Article:**

● With the rising statistics of traffic accidents and child abduction, there is a need for a

robust system that enables constant tracking for a specific child by there’re specific

parents who are on their way commuting from and to schools.

● These things are possible with the help of the emerging Internet of Things (IoT)

technology, in addition to Radio Frequency Identification (RFID), developing such

systems becomes feasible.

● This system provides complete visibility of children tracking. In this paper, we propose a

complete low cost design and implementation of an IoT based system that allows schools,

parents and authority to track the movement of the children during their presence in the

school bus, which guarantees comfort for parents and safety for children.

● The system is based on, a low cost Nano RFID reader and a GPRS module both

interfaced with Arduino microcontroller.

● The Nano RFID reader is used as an interface for providing the reader with a means to

access the internet over 3G/4G network.

● We build a Mysql database and deploy it on the cloud platform, which makes building

applications and deploying them fast, secure, easy and scalable.

**10.)IoT Based Shrewd Monitoring Framework for Children Safety:**

-KP Revathi, T Manikandan ECS Transactions 107 (1), 13967, 2022

**In this Article:**

● In the system, we have developed a smartwatch that can be used to locate missing or lost

children and also track the child movements outside from the home as well as for

facilitating women&#39;s safety.

● Here the user itself can create his own circle in a mobile app with some radius of distance

according to their comfort.

● When the person is out of the location, which means out of the radius, immediately the

message has been sent to the emergency contacts which are already selected before by the

user in the mobile app.

● This process can be controlled by the end user. If the user hurts in any case, it will send

the alert messages to the pre-elite contacts.

● GPS (Global Positioning System) is employed to urge the position of a widget in terms of

latitude and meridian.

**11.)IoT based Child Safety Management using Raspberry Pi and RFID**

**Technology:**

-Mohammad Jabirullah, M Amru, D Raviteja

IOP Conference Series: Materials Science and Engineering 981 (4), 042079, 2020

**In this Article:**

● The protection and welfare of children is becoming more necessary to create a society

that is greater and stronger.

● Therefore, the protection measures of kids must be strengthened to eliminate difficulties

for kids. With this in mind, several tools and systems are employed to maintain the child&#39;s

safety environment. Improving intelligence agencies in this field, in this paper a system

for children&#39;s safety is proposed for children safety purposes. We develop anIoT based

child safety using raspberry.

● Students having RFID based cards which are used for authentication. Whenever a student

enters the school bus the Raspberry sends a message notification to parents and the principal.

**12.)IoT Based Child Safety Locator From Water and Fire:**

-Md Rony, Minhajul Islam, Sanjida Khanam, Sagar Gosh

Daffodil International University, 2021

**In this Article:**

● This project is an IoT based development project titled “IoT Based Child Safety Locator

from Water and Fire”.

● For the past few years, the child date rate has been a major concern, particularly in our

country.

● This IoT based development project is designed &amp; built for general people who don’t

need any in- depth knowledge of using digital technology.

● This project is mainly focused to reduce the child death rate.

● Also, this can ensure the awareness of parents for the children.

● In this system we used node MCU, GPS module and many other components.

**13.)Design and development of an IOT based wearable device for the**

**safety and security of women and girl children:**

-Anand Jatti, Madhvi Kannan, RM Alisha, P Vijayalakshmi, Shrestha Sinha

2016 IEEE International Conference on Recent Trends in Electronics, Information &amp;

Communication Technology (RTEICT), 1108-1112, 2016

**In this Article:**

● The aim of this work is to develop a wearable device for the safety and protection of

women and girls. This objective is achieved by the analysis of physiological signals in

conjunction with body position.

● The physiological signals that are analyzed are galvanic skin resistance and body

temperature. Body position is determined by acquiring raw accelerometer data from a

triple axis accelerometer.

● Acquisition of raw data is then followed by activity recognition which is a process of

employing a specialized machine learning algorithm.

● Real-time monitoring of data is achieved by wirelessly sending sensor data to an open

source Cloud Platform.

● Analysis of the data is done on MATLAB simultaneously. This device is programmed to

continuously monitor the subject&#39;s parameters and take action when any dangerous

situation presents itself.

● It does so by detecting the change in the monitored signals, following which appropriate

action is taken by means of sending notifications/alerts to designated individuals

**14.)Design of Wearable Device for Child Safety:**

-M Benisha, R Thandaiah Prabu, M Gowri, K Vishali, M Anisha,

Ponmozhi Chezhiyan, C Jim Elliot

2021 Third International Conference on Intelligent Communication Technologies and Virtual

Mobile Networks (ICICV), 1076-1080, 2021

**In this Article:**

● The key idea planned in this research work is an advanced technology that offers “Smart

Child Safety” for the children. Therefore, the awareness of this method is to send an SMS

from children&#39;s wear tools to their parents or guardians.

● In the prevailing structure, there is no monitoring method for children, it could create

many problems for them and there is no protection mechanism to protect the child from

misbehavior.

● In addition, there is no awareness device for the child&#39;s protection; it must be completed

by hand only and must be completed by hand only.

● Thus, the planned method will be highly effective when compared to the other existing

techniques in helping the victims.

● Moreover, it doesn&#39;t need any manual operation. This paper recommends a newfangled

technology for child protection by using GSM so that the children will not feel

abandoned while facing such social problems.

● The problems overlayed here using Arduino UNO, GSM, sensors, MEMS, temperature

and panic button by using IOT.

**15.)IOT Based Smart Life Saver System for Kids and Objected**

**Tracking:**

-Diaa SALAMA ABD-ELMINAAM, Rasha ORBAN, Fatma SAKR

**In this Article:**

● Nowadays child security is an essential area of concern.

● Recently, crime against children is increasing at higher rates, and it is time to offer a

safety system for the kids and objects.

● Tracking kids and individual objects remotely is the main goal for everyone for safety

protection.

● There are various systems used for tracking the position of objects such as a car, but there

is no such system made for tracking a human being.

● The paper provides a smart, inexpensive solution for preventing losing kids while going

out alone or with their parents based on the Internet of Things (IoT).

● Our proposed system ensures maximum security and ensures live tracking for their kids.

● This paper proposed a model for child safety through smartphones that can track their

children&#39;s location and give the exact coordinates of the child&#39;s location in real-time

anywhere. In case of emergency, children can send a quick message and its current

location via Short Message services.

● This proposed system is validated by testing on the Android platform. The correct

operation of the system verifies the proposed system.

**16.)Crowdsourced children monitoring and finding with holding up**

**detection based on internet-of-things technologies:**

-Lien-Wu Chen, Tsung-Ping Chen, Hsien-Min Chen, Ming-Fong Tsai

IEEE Sensors Journal 19 (24), 12407-12417, 2019

● In this paper, we propose a crowdsourced children monitoring and finding (CCMF)

framework to detect holding-up behaviors and find missing children using wearable

devices and surrounding smartphones based on Internet of Things (IoT) technologies.

● In the monitoring mode, the CCMF framework can prevent young children from being

taken away by strangers/people with bad intentions.

● In the finding mode, the CCMF framework can cooperatively find missing children

equipped with wearable devices consisting of mobile iBeacon and 3-axis accelerometer

modules through crowdsourced sensing networks formed by smartphone users with

outdoor GPS and indoor IoT localization.

● According to our review of relevant research, CCMF is the first children monitoring and

finding solution that can detect holding-up postures of a target child and provide the

guiding path to a lost child through crowdsourced sensing networks.

**17.)An Mobile Safety Monitoring System for Children:**

[Zejun Huang](https://ieeexplore.ieee.org/author/37085339036); [Zhigang Gao](https://ieeexplore.ieee.org/author/37309234600); [Huijuan Lu](https://ieeexplore.ieee.org/author/37085338020); [Jiancheng Zhang](https://ieeexplore.ieee.org/author/37085339003); [Zuoqi Feng](https://ieeexplore.ieee.org/author/37085339152); [Haixia Xia](https://ieeexplore.ieee.org/author/37880096400)

**In this Article:**

* Aiming at the increasing security risks of children, this paper presents and implements a kind of Mobile Children Security Monitoring (MCSM) system based on android phones to help guardian to acquire whether children are safe or not.
* MCSM implements the software hand function and the danger zone function for two typical safety scenarios, i.e., going outside with their guardians and without their guardians respectively.
* The software hand function can keep children in guardian's view by using Bluetooth near field communication, and the safety zone function can make guardians know children's location timely by using GPS sensors, acceleration sensors, and mobile GIS (Geographic Information System).
* Experiments shows the system has the characteristics of high reliability, short response time and high accuracy, and can meet the requirements to ensure children's safety.

# 18.)Information for Action: Developing the Victorian Child and Adolescent Monitoring System (VCAMS)

-[Joyce Cleary](https://search.informit.org/doi/abs/10.3316/informit.521195193057401) ;[Sharon Goldfeld](https://search.informit.org/doi/abs/10.3316/informit.521195193057401); [Stacey Gabriel](https://search.informit.org/doi/abs/10.3316/informit.521195193057401); [Don Siemon](https://search.informit.org/doi/abs/10.3316/informit.521195193057401);

**In this Article:**

* The role of data in shaping policy and establishing priorities for governments has never been more critical.
* Systematic monitoring of the health, development and wellbeing of children and adolescents both as a population, and in particular, within more vulnerable populations, is fundamental to the capacity of the government to make sound choices.