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A Survey on Child Tracker System with Emergency Notifier using IoT

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ABSTRACT

These Days parents are worried about their children's so they want a complete track of them and monitor them all the time, This is physically not possible so we introduce Safety Monitoring system which is helpful for health monitoring or tracking the child and their activities from anywhere in the world. The major issue of child missing can be solved with the help of child tracking system as well as parents who need to keep a track of their every steps, this system plays a vital role. ESP8266 Wi-Fi module gets the coordinates from GPS modem and then it sends this information to user in text SMS. Heart beat and Accelerometer Sensor is used to send health related and position related values send via Wi-Fi network to the parent. The latest like GPS are highly useful now days, this system enables the parent to observe and track his location and find out child movement and its past activities.

Keywords: GPS, Heartbeat Sensor, Location, IoT, Accelerometer Sensor, Microcode Applications.

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I. INTRODUCTION

Today, All over the world, crime against children is increasing at higher rates and it is high time to offer safety support system for the children because children are active and sensitive. It is always difficult to effectively analyze the natural behavior of children. Today, technology is growing rapidly and providing all essential and effective solutions for every requirement. Children tracking system is also developed based on GPS networks. System developed in GPS system and tag based system, the system provides safety and monitoring for the parents so that they can easily track their children according to their requirement.

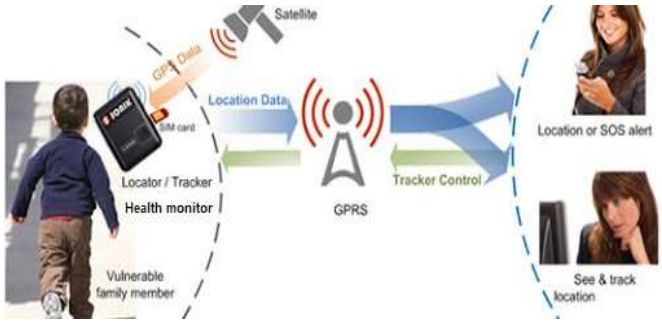

Fig 1. Simple Structure

Problem Statement:

The incidence of missing children is no longer a weird thing. Children require special attention from parents to control their movements. Parents need to be aware of their children to avoid the incidence of missing children.

This is because of leave a child alone can increasing the risk of losing it or lead to kidnapping. it becomes the tremendous problem around the children and their parents.

II. LITERATURE SURVEY

[1] Smart Child Safety Wearable Device, Year: 2020
Author Name: Bannuru Ranjeeth, B. Srinivasa Reddy, Y. Manoj Kumar Reddy, S. Suchitra, B. Pavithra
Description:
The project undertaking would help in improving the wellbeing and security of children. This will help the authorities to solve the child missing cases easily. It will improve social security as well as parents' insecurities. This project will reduce crime rates in society. This takes low cost while implementing and building so that everyone can afford this. Everyone in this era using smart devices and gadgets which will be helpful for the parents to use IOT based device. Child security is the foremost common issue emerging around the world. There are numerous issues to youngster security and this work primarily manages kid security from the dangers like missing, abducts. The

Technical point of this task is to have an ordinary correspondence between the kid and parent through the gadget which helps in finding the area, pulse and temperature of the kid utilizing the gadget empowered with the pulse sensor, temperature sensor and GPS tracker

[2] IoT-enabled Smart Child Safety Digital System Architecture, Year: 2020
Author Name: Madhuri Madhuri, Asif Qumer Gill, Habib Ullah Khan
Description:
It is anticipated that the proposed integrated digital technology architecture such as the Salesforce cloud, Mobile Application and GPS can be easily used for tracking a missing child in an event. This work is a first steps towards the development of a working software for a Smart Child Tracker. There are a number of options for customizing the architecture such as the use of tracking pin, which can be easily clipped on to the child's clothing. Thus, future researcher can be conducted to analyze alternate tracking options and architecture design patterns that could replace GPS with low cost RFIDs or iBeacons. For instance, RFID tags can be a very good option for active tracking.

[3] Children Security and Tracking System Using Bluetooth and GPS Technology, Year: 2019
Author Name: Mohammad Zulhafiz Md Isa, Muhammad Mahadi Abdul Jamil, Tengku Nadzlin Tengku Ibrahim, Muhammad Shukri Ahmad, Nur Adilah Abd Rahman, and Mohamad Nazib Adon
Description:
This project of children security and tracking system using Bluetooth and GPS technology has been successfully developed. The result and analysis of the data obtained from the project testing have been carried out that this project has achieved the objective and the purpose of this project being developed. This device can help parents to track the location of their missing children. This device can send the alarm notification through the smartphone when the Bluetooth connection is lost. The GPS module gets the coordinate of the device and sends into the smartphone by using SIM900A GSM module. This GSM module can send the message that contains coordinate and link to the Google Maps. This device can be used easily to the parents to help them find the location of their children.

III. PROPOSED SYSTEM

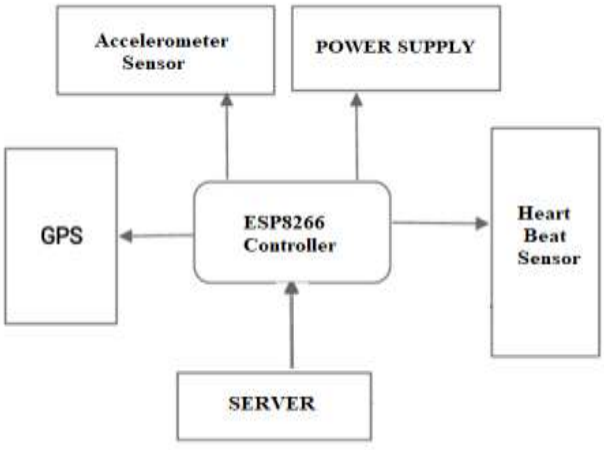

Fig 2. System Architecture

A. ***Description***:

In order to get the precise location details, an ESP8266 controller is used. The arduino software is uploaded to the ESP8266 microcontroller using USB cable. All components are interfaced onto the Wi-Fi microcontroller. Design of the system is categorized into two parts, one is hardware and another is software. The designing is developed in order to make the child tracking system remotely active and health monitor using health sensors. Heart beat sensor used for the child heath monitor. Display is used in order to notify the changes in x,y and z coordinates created by the movement of the accelerometer sensor. The sensor is supplied by the power from the ESP8266. GPS module is externally connected through the ESP8266. With the help of the interfacing, these two modules can transfer and exchange information. An IoT web page is designed using IoT technology in order to monitor the whole working process and location details. This proposed design is a far better version of the already existing systems which are technically restricted in some areas.

B. Mathematical Model

System Description:

S={L,G,S,H,P,Si,Fi}
Input:

Tracking ()
L : Tracking location of child.
G : GPS for tracking the current location
S : SMS send for updating location to parents.
H : Heart beat sensor values.
P: Child Position detection.

Output:
Tracking current location of child and health values.

Si: Success Condition
When the controller send the values to the server for detection the current location.

Fi: Failure Condition
When GPS not detect the location and health values not send the values to the server.

IV. ACKNOWLEDGEMENT

I wish to express my profound thanks to all who helped us directly or indirectly in making this paper. Finally, I wish to thank to all our friends and well- wishers who supported us in completing this paper successfully I am heartily thankful to my project guide for his valuable guidance and inspiration. In spite of their busy schedules they devoted their self and took keen and personal interest in giving us constant encouragement and timely suggestion. Without the full support and cheerful encouragement of my guide, the paper would not have been completed on time.

V. CONCLUSION

This project implementation primarily focuses on tracking a child's position and its location is sent to its parent and

control room. It can be extended to perform the same for all children in the school by reducing the size of the child module.

This project of children security and tracking system using ESP8266 Wi-Fi model and GPS technology has been successfully developed. The result and analysis of the data obtained from the project testing have been carried out that this project has achieved the objective and the purpose of this project being developed. This device can help parents to track the location of their missing children.

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