
AN INTELLIGENT IOT TRACKING SOLUTION FOR WOMEN AND CHILD PROTECTION

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ABSTRACT:

Women and child safety has become a critical social priority, demanding innovative technological solutions that ensure continuous monitoring, rapid response, and reliable communication during emergencies. This paper presents **An Intelligent IoT Tracking Solution for Women and Child Protection**, a smart, real-time safety system that integrates IoT devices, GPS tracking, sensor modules, and cloud connectivity to provide seamless monitoring and instant alert mechanisms. The proposed system employs a compact wearable device equipped with location sensors, microcontrollers, and emergency trigger buttons that activate distress signals when the user is in danger. Upon activation, the system transmits the user's live location, device ID, and real-time sensor data to guardians and emergency services through a secure cloud network. A mobile application interface enables remote tracking, geofencing, and data visualization, while analytics support situational awareness and quick decision-making. The system prioritizes low power consumption, high accuracy, and robust communication using IoT protocols such as MQTT and GSM/LTE. Experimental results demonstrate reliable real-time tracking, minimal latency in alert delivery, and effective performance in both indoor and outdoor environments. This research highlights the potential of IoT-driven intelligent safety devices to enhance protection measures for women and children, offering a scalable and cost-effective solution for modern public safety challenges.

INTRODUCTION:

Ensuring the protection and security of women and children has become crucial in the fast-paced world of today. The Internet of Things (IoT) is used by a Smart Asset Tracking System

created especially for women and kids to enable real-time monitoring and location tracking. By enabling guardians and caretakers to closely monitor the whereabouts and well-being of their loved ones, this ground-breaking system provides peace of mind. Important characteristics: Real-time position Tracking: By using GPS technology, the system gives guardians exact position data, enabling them to keep an eye on the tracked person's movements in real-time. Geofencing: Establish safe zones and get warnings when the tracked individual goes into or out of these regions in advance, ensuring they stay inside protected areas. Notifications in Case of Emergency: With a single button press, the user can instantly transmit SOS or distress signals to pre-identified contacts. Battery Efficiency: Because of their efficient power consumption, tracking devices have lengthy battery lives that allow them to track continuously without needing to be frequently recharged. Easy to Use Interface: Guardians can easily monitor and control the tracking devices with the system's user-friendly mobile application and web dashboard. Advantages: Enhanced Safety: Offers an extra degree of protection by monitoring women's and children's whereabouts, particularly in strange or possibly hazardous settings. Peace of Mind: Provides parents, guardians, and caregivers with comfort by giving them information about the security and welfare of their loved ones. Rapid reaction: By giving emergency services or contacts precise location data, the technology facilitates a prompt reaction in the event of an emergency.

PURPOSE

In the context of women's and children's protection, this study presents a Smart Asset Tracking System that makes use of Internet of Things (IoT) technology. In order to protect women and children, the system uses a network of linked devices, such as communication modules and GPS-enabled trackers, to monitor and track the position of valuable items, such as personal possessions. Real-time location data is used by the Internet of Things (IoT)-based asset tracking system to enable continuous monitoring and immediate alerts in the event of emergencies or unforeseen circumstances. By means of an intuitive user interface that can be accessed through mobile applications or web platforms, guardians or caregivers can actively monitor the movement of assets, thereby augmenting the general safety of women and children in diverse settings.

EXISTING SYSTEM

Numerous tracking systems utilizing RFID, GPS, and other technologies are available on the market. It is true that these technologies are unable to pinpoint precise locations within a

building, on a given floor, or within a person's personal area.

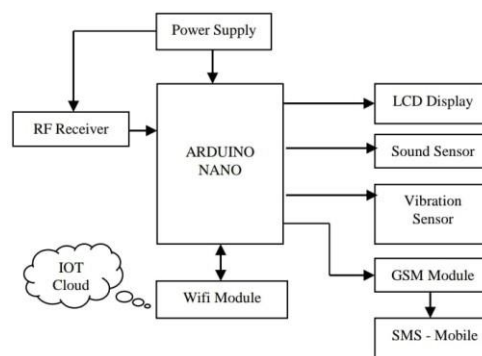
PROPOSED SYSTEM

This paper suggests a smart asset monitoring system that makes it possible to keep an eye on the people, products, and equipment inside a building or other facility. Our system will utilize both IoT and RF communication to achieve this solution. With every item, every RF is allocated. The monitoring unit is linked to an RF receiver, which provides the status of its presence. This data will be updated on the IOT server, and a GSM module will be used to deliver SMS. an ESP32 controller with built-in WiFi and an RF receiver.

TECHNICAL SPECIFICATIONS: HARDWARE:

Microcontroller	:	ESP32
Crystal	:	16 MHz
LCD	:	16X2 LCD
Wireless Module	:	RF 433Mhz- 2.4Ghz
GSM module	:	SIM800c
Power Source	:	12v 1 amp Adaptor

BLOCK DIAGRAM:

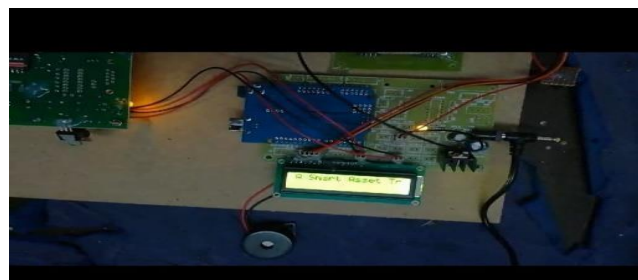


CONCLUSION:

In conclusion, an intelligent tracking system using Internet of Things applications for women's and children's safety. In the quickly changing world of technology today, families, caregivers, and society at large now place a premium on women's and children's safety. One innovative way to properly solve these issues is via a smart tracking system that makes use of Internet of Things technologies. Women and children can feel more confident and at ease in their everyday lives because to the combination of advanced safety features, geofencing, two-way communication, and real-time tracking all combined into one gadget. Making sure a

child is safe while returning from school or giving an aging family member the ability to call for assistance in case of an emergency are just two examples. All users may easily access and utilize these systems due to their user-friendly interfaces, extended battery life, and smooth connection with other IoT devices. Families and caregivers can feel even more secure knowing that assistance is always there when needed thanks to the customizable settings, real-time alerts, and remote location data monitoring features. In summary, a smart tracking system for kid and women's safety that integrates Internet of Things applications is a big advancement in using technology to keep vulnerable people safe. These solutions use the Internet of Things to its full potential, enhancing personal safety while also fostering a culture of empowerment, alertness, and community support. The advancement of technology is ongoing. anticipate even more cutting-edge additions and upgrades that will expand the usefulness and reach of these indispensable safety instruments.

RESULT:



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