



Child Safety Wearable Device

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Abstract:

This paper focuses the child safety wearable device. The main concept Node Guard represents a novel approach to child safety through the integration of NodeMCU technology. This wearable device leverages the power of NodeMCU, an open-source IoT platform based on the ESP8266 WiFi module, to offer real-time monitoring and tracking functionalities. NodeGuard employs GPS and WiFi positioning systems to accurately track the child's location, providing parents with timely updates through a dedicated mobile application. Additionally, NodeGuard features biometric sensors to monitor vital signs and detect potential emergencies, ensuring rapid response in critical situations. The integration of NodeMCU technology enables NodeGuard to be highly customizable, allowing for the addition of features such as geo-fencing and SOS alerts. With its compact form factor and low power consumption, NodeGuard offers a reliable and efficient solution for ensuring the safety and well-being of children in various environments.

Child safety is a paramount concern for parents and guardians, especially in crowded or unfamiliar environments where children may be at risk of getting lost or encountering danger. In response to this challenge, this project proposes the development of a child safety wearable device using NodeMCU, an open-source IoT platform based on the ESP8266 Wi-Fi module.

The project will be conducted in multiple phases, including design, development, testing, and evaluation. Throughout these phases, considerations will be given to factors such as battery life, connectivity, and data privacy to ensure the effectiveness and reliability of the device.

Overall, this project aims to contribute to the development of innovative solutions for ensuring the safety and well-being of children in an increasingly connected world. By leveraging the capabilities of NodeMCU and integrating them with advanced sensors and communication modules, the proposed child safety wearable device has the potential to make a significant impact in safeguarding children in various situations.

Keywords: Safety, Wearable, NodeMCU, Children

Introduction:

This research paper introduces a novel approach to enhancing child safety through the integration of Wi-Fi technology and NodeMCU microcontrollers into a wearable device. wearable device that utilizes Wi-Fi connectivity for real-time monitoring and communication, coupled with the In today's fast-paced world, ensuring the safety of children has become a top priority for parents and guardians. Whether in crowded public places, busy streets, or unfamiliar environments, the risk of children getting lost or encountering danger is ever-present. To address this concern, technological solutions leveraging IoT (Internet of Things) devices have emerged as promising tools for enhancing child safety and providing peace of mind to caregivers. This project proposes the development of a child safety wearable device using NodeMCU, an open-source IoT platform based on the ESP8266

Wi-Fi module. NodeMCU offers a powerful and flexible platform for building connected devices, making it an ideal choice for creating a wearable device tailored to the needs of child safety.

The primary objective of this project is to design and implement a prototype of the child safety wearable device, equipped with features such as GPS for real-time location tracking, GSM for communication, and additional sensors for environmental monitoring. By leveraging the capabilities of NodeMCU and integrating them with advanced sensors and communication modules, the wearable device aims to provide comprehensive monitoring and alerting functionalities to ensure the safety of children in various situations.

The development of the child safety wearable device will be complemented by the creation of a companion mobile application. This application will enable parents or guardians to

monitor their child's location in real-time, receive alerts in case of emergencies or deviations from predefined safe zones, and communicate with the child if necessary. The mobile application will serve as an intuitive and user-friendly interface for interacting with the wearable device, enhancing the factors such as battery life, durability, and user comfort. The wearable device will be designed to be lightweight, compact, and comfortable for children to wear, ensuring that it can be worn for extended periods without causing discomfort or inconvenience. In summary, this project aims to contribute to the development of innovative solutions for ensuring the safety and well-being of children in an increasingly connected world. By combining the power of NodeMCU with advanced sensors and communication technologies, the proposed child safety wearable device has the potential to make a meaningful impact in

Block Diagram:

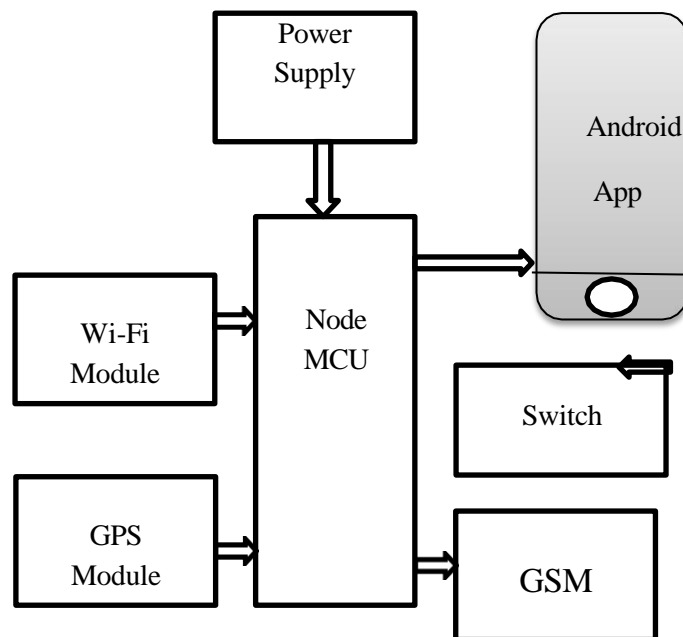


Fig.1: Block diagram of proposed system

Result:

Following fig2 and fig3 shows result of project, once child click on switch button and gets fig3 as result and gets GPS address of child location and message on mobile phone .fig2 shows final location of child on Google map.

Safety and privacy assessment, However, variations existed in terms of data encryption standards and parental control options, with some

safeguarding children and providing peace of mind to caregivers.

Methodology:

Understand the needs and concerns of parents regarding child safety. Determine what specific safety features it will include, such as GPS tracking etc. Choose appropriate technology components, such as GPS modules, communication protocols. Develop the accompanying mobile application and backend system to interact with the wearable device. This includes features like real-time location tracking, alerts, and notifications. Conduct thorough testing to ensure the device functions as intended. Test for accuracy of location tracking, battery life, durability, and usability. Once the design and functionality are finalized, begin mass production of the device. Work with manufacturers to ensure quality control and consistency in production.

devices offering more comprehensive solutions than others.

Overall satisfaction with child safety wearables was moderate to high, with most users expressing appreciation for the added peace of mind.

Common themes included the importance of accurate tracking, user-friendly interfaces, and reliable communication features.

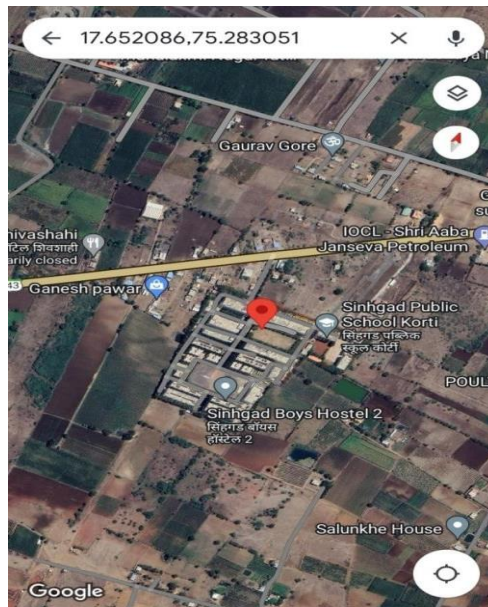


Fig2: GPS Location on map



Fig3: Message and location on mobile phone

Conclusion:

In conclusion, child safety wearable devices offer a promising solution to address the ever-present concern of ensuring children's safety in today's fast-paced world. By harnessing the power of technology, these devices provide parents and caregivers with invaluable peace of mind, knowing they can keep track of their child's whereabouts and well-being in real-time.

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