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Smart Gadget for Avoiding Human Trafficking and Child Safety System

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Abstract: *This paper introduces a Smart Gadget for Avoiding Human Trafficking and Child Safety System, integrating various microcontroller modules for real-time location tracking. It employs components such as the Buttons, Buzzer, and ESP8266 Node MCU for internet connectivity.*
This Project presents a Human safety detection system using Wi-Fi Module. The system can be interconnected with the alarm system and alert the neighbors. This detection and messaging, calling system is composed of a GPS receiver, Microcontroller and a GSM Modem. GPS Receiver gets the location information from satellites in the form of latitude and longitude.
The Microcontroller processes this information and this processed information is sent to the user using Wi-Fi Module. A Wi- Fi Module is interfaced to the Node MCU. The Wi-Fi Module sends an SMS and calls to the predefined mobile number. When a Be activated then immediately a SMS and call will be sent to concern person with location using Wi-Fi Module.

Keywords: Node MCU, Buttons, Buzzer, RPS, Mobile App (MIT), Wi-Fi

I. INTRODUCTION

Security is the condition of being protected against danger or loss. In the general sense, security is a concept similar to safety. The nuance between the two is an added emphasis on being protected from dangers that originate from outside. Individuals or actions that encroach upon the condition of protection are responsible for the breach of security. The word "security" in general usage is synonymous with "safety", but a technical term "security" means that something not only is secure but that it has been secured. This project is designed with ATmega328.

This Project presents a women safety detection system using GPS and GSM modems. The system can be interconnected with the alarm system and alert the Neighbors. This detection and messaging system is composed of a GPS receiver, Microcontroller and a GSM Modem. GPS Receiver gets the location information from satellites in the form of latitude and longitude.

The Microcontroller processes this information and this processed information is sent to the user using GSM modem. A GSM modem is interfaced to the MCU. The GSM mode Seem sends an SMS to the predefined mobile number. When a Human is in danger and in need of self-defense then human can press the switch which is allotted to them. By pressing the switch, the entire system will be activated then immediately a SMS will be sent to concern person with location using GSM and GPS. This project uses regulated 5V, 750m a power supply. 7805 three terminal voltage regulator is used for voltage regulation. Bridge type full wave rectifier is used to rectify the ac output of 230/12V step down.

II. LITERATURE SURVEY

Currently a child's security is a crucial space of concern. This paper is developed to rectify the troubles parents relating to their child security. In keeping with a story from 2014, about 135,000 kids are calculable to be trafficked in India annually. One amongst the most precedence over this device is that it provides us the tracing details of our little ones. And it doesn't require a smart phone or a technician person to know and use it. The motive of this device is to assist find their kids with none difficulties. Human trafficking and child abduction are major global concerns, prompting the development of technological solutions to enhance safety and enable real-time monitoring. With the growth of IoT

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(Internet of Things), smart wearable devices, GPS technologies, and AI-based tracking systems, innovative gadgets have emerged to prevent and respond to such threats.

• IoT-Based Safety Devices for Women and Children
Study: Kaur et al. (2021) designed an IoT device integrated with GSM and GPS to alert police and relatives with the victim's location when a distress signal is triggered.
Technology: Arduino, GSM Module, GPS Sensor.
Impact: Enhanced rescue chances during trafficking attempts.
Mobile Applications and Panic Buttons
Example: "Raksha" app by the Indian Government integrates GPS, call, and message features to alert emergency contacts.
Limitation: Requires a Smartphone and internet access.

III EMBEDDED SYSTEMS & IOT INTEGRATION

Embedded systems are dedicated computing platforms designed to perform specific tasks efficiently in real-time. The drowsiness detection module uses sensors and embedded software to analyze driver behavior and detect signs of fatigue. The collision avoidance module relies on Arduino UNO, which processes data from ultrasonic sensors to detect nearby obstacles and issue alerts using LEDs. These systems handle localized data processing, ensuring immediate safety responses. The Internet of Things (IoT) enhances the capabilities of embedded systems by enabling remote connectivity, data sharing, and monitoring. Using Node MCU as the IoT module, your system transmits real-time data from the drowsiness.Detection and collision avoidance modules to cloud platforms or mobile applications. This integration allows users to remotely monitor vehicle safety metrics and receive instant alerts, improving overall situational awareness. The integration of embedded systems and IoT provides adual-layer functionality. Embedded systems. Ensure real- time responses to safety issues, such as obstacle detection or fatigue alerts, while IoT transmits processed data for remote logging. Analysis, and monitoring. This synergy bridges the gap between immediate action and long-term oversight, making the system suitable for both individual and fleet applications, the combination of embedded systems and IoT in your project delivers several advantages, including real-time functionality, cost-efficiency, scalability, and remote accessibility. While challenges such as internet dependency, data security, and system complexity exist, the hybrid approach ensures a robust and comprehensive solution for enhancing vehicular safety.
The integration of Internet of Things (IoT) into vehicular safety enhances the scope and effectiveness of these systems. loT enables real- time data sharing. remote monitoring, and analytics, making it possible to track vehicle safety metrics from anywhere. Such connectivity is especially valuable for fleet management, where multiple vehicles can be monitored simultaneously for compliance with safety protocols.
Despite these advancements, challenges remain, including the affordability and accessibility of high-end technologies. Many safety systems are limited to luxury vehicles, leaving a gap in affordable, scalable solutions for standard vehicles. Addressing this gap through the integration of embedded systems and IoT ensures broader adoption and improved road safety. This combination enables a proactive approach. Emphasizing prevention over response, and contributes significantly to reducing road accidents and fatalities.

IV. EXISTING SYSTEM

The status of women in India has gone through many great changes over the past few thousand years. From equal status with men in ancient times through the low points of the medieval period to the promotion of equal rights by many reformers, the history of children in India has been eventful. In modern India, women have adorned high offices in India including that of the President, Prime Minister, Leader of the Opposition and Speaker of the
Lokh Sabah. However, women in India continue to face social challenges and are often victims of abuse and violent crimes and, according to a global poll conducted by Thomson Reuters, India is the "fourth most dangerous country" in

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the world for women, and the worst country for women among the G20 [A group of developing industrial Nations established on 20th August 2003] countries. In India, every day more sthan
30 women were murdered and many are suffering austere mental and physical trauma. Having this concern in mind many developers have come up with creative applications: SECURITY
The co-founders of this system have designed three personal alarms that can shock and disorient potential attacker sand hence safe guard the victim from perilous situations. AESHS (Advanced Electronics System for Human Safety) Advanced electronics system can be developed that can detect the location and health condition of person, will enable us to take action accordingly. The project will be developed that can detect the location and health condition of a person using electronic gadgets like GPS receiver, GSM, pulse rate sensor, body temperature sensor. The Advanced Electronic System for Human Safety (AESHS) maintains real-time status of all unit elements in the tactical combat zone. The GPS based end-unit is carried by person is connected via Wrist unit to other network sharing units. Implementation of the AESHS can be realized as part of the human monitoring and alarm system (MAS) to provide automatic tracking, monitoring and reporting of individual person.

V. PROPOSED METHOD

Government of India, meeting a long standing demand for gender parity in the workforce, has approved an amendment in The Factories Act 1948 to allow women employees to work in nightshifts. The amendment suggests that nightshift for women shall be allowed only if the employer ensures safety, adequate safeguards in the factory as regards occupational safety and health, equal opportunity for human workers, adequate protection of their dignity, honor and transportation from the factory premises to the nearest point of their residence are met. Nightshifts have been inexistence for a long time, however for India it was only recently through an amendment to the Factories Act 1948 that it was allowed under the law for women to work nightshifts. Women are participating in almost all the spheres of economic activity. From village to city, we can see number of women workers and entrepreneurs contributing towards the national income of the country. Garment units already employ 60% of women workforce; and with growth in this industry the number this will go up tremendously. So far, the IT sector were employing women for late- night work hours but had no legal obligation to provide the above safety measures. There is no denying the fact that women in India have made a considerable progress in almost seven decades of Independence, but they still have to struggle against many handicaps and social evils in the male-dominated society. Many evil and masculine forces still prevail in the modern. The only solution to the problem can be taken in such a way that, human should be assigned with a safety gadget that is portable and ensures her safety. Our project focuses on providing a Smart gadget based on IoT solutions that not only helps to child escape the critical situations but also ensures to provide justice to the child by capturing the image of the culprit if in case any harassment occurs. Swami Vivekananda, one of the greatest sons of India, quoted that, “There is no chance for the welfare of the world unless the condition of child is improved, and it is not possible for a bird to fly on only one wing”.
We proposed a system called Smart gadget with the help of IOT which is used for he human and child safety in public and private places. This device will contain a switch in which an immediate beep sound will be occurring. Continuous calls will be sent to the registered mobile. SMS’s will be sent as “I AM IN DANGER”. The present location of the victim is also included in the text message. To combat human trafficking and ensure child safety, a smart gadget-based system can be implemented using devices like smart watches and smart phones. These gadgets can feature real-time GPS tracking, geofencing to alert guardians when a child exits safe zones, and an SOS button for emergencies. AI can monitor unusual behavior or distress through voice and activity patterns, while biometric verification ensures only authorized individuals can pick up children. Data is synced to a cloud system that sends real-time alerts to parents and law enforcement, creating a proactive and responsive safety network for children.

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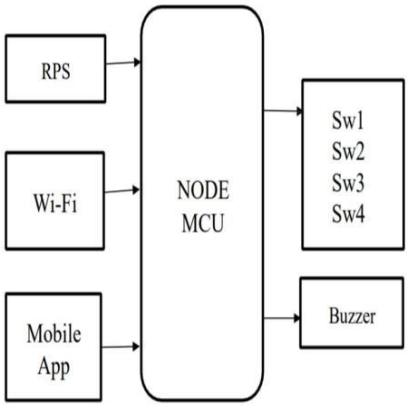

Figure1: Block Diagram

VI. SOFTWARE EMPLOYED

Node MCU and Arduino are popular platforms for developing smart gadgets that can help prevent human trafficking and ensure child safety. Using these platforms, developers can create devices that track locations, detect suspicious activity, and send alerts to authorities or guardians. Node MCU's Wi-Fi capabilities and Arduino's versatility enable the integration of various sensors and modules, such as GPS, accelerometers, and GSM modules. By leveraging these technologies, developers can build innovative solutions, like wearable safety devices or smart home security systems that can play a vital role in keeping people safe.

The Arduino IDE is used to program the Arduino UNO and Node MCU. The Arduino UNO controls the ultrasonic sensors to measure the distance from obstacles and manages the LED alert system. The Node MCU handles wireless communication between the system components. Lastly, serial communication is used to connect Python with the Arduino and Node MCU, allowing them to work together in real-time.

In simple terms, Open CV is used for facial and eye detection, Python for system logic, and Arduino IDE for controlling hardware components like sensors and motors, with serial communication to connect everything.

VII. RESULTS

The smart gadget for avoiding human trafficking and child safety system has shown promising results. With its accurate location tracking and timely alerts, this device has the potential to significantly improve child safety. Future enhancements, such as integrating Al and machine learning can further improve the device's effectiveness.

Smart gadgets employed to prevent human trafficking and ensure child safety utilize various software and technologies, including IoT, GPS tracking, sensor integration, and machine learning/AI. These technologies enable wearable devices to track locations, monitor health metrics, and send alerts. Examples include wearable patches and smart wearable devices that detect emergencies and send notifications. Child security monitoring systems analyze health metrics and GPS data to ensure physical and environmental awareness. These technologies have applications in tracking and tracing, providing location details to prevent potential threats and ensure timely intervention. By leveraging these technologies, smart gadgets can play a vital role in keeping people safe.

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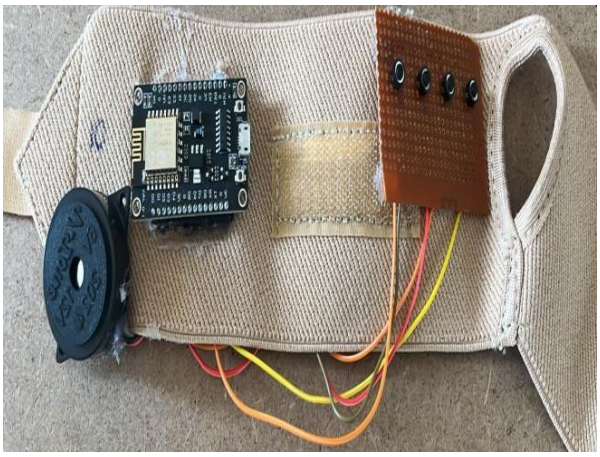

Figure2: Project Prototype

Output:

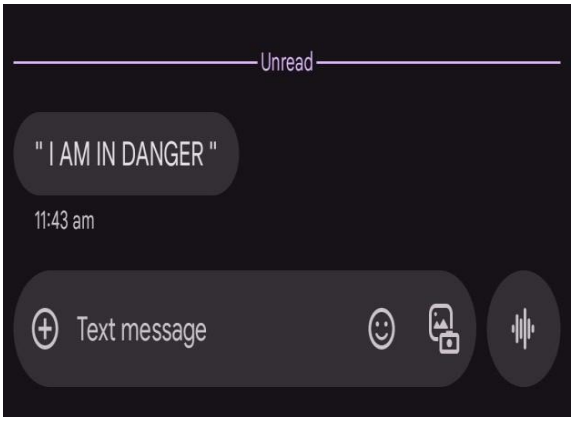

Figure3: Alert Message

VIII. CONCLUSION

Our effort behind this project is to design and fabricate a gadget which is so compact in it self that provide advantage of personal security system the emergency response system which is helpful for child in the incidents of crime. It is low cost system which can store the data of the members in the particular locality and provide immediate alert in case of crime against human. This provides women security. Being safe and secure is the demand of the day.

Finally it is a solution for the existing child safety problems, this is a gadget like band using IoT. With the help of these gadgets humans and child can safely travel anywhere. Further research can be made to make prototype into consumer product With the help of this gadget women can step out safely without any other weapons and even parents can allow them to go out. So this gadget can be made into consumer product and can safely handover to human and help them.

In the future, we can make this prototype as mini consumer product which can be carried anywhere and very useful and helpful. With this maximum no of child can safely go outside.

IX. FUTURE SCOPE

The smart gadget for avoiding human trafficking and child safety system has immense potential for growth and development. One of the primary areas of focus for future enhancements is the integration of artificial intelligence (AI) and machine learning (ML) algorithms. By leveraging these technologies, the device can improve its threat detection accuracy, reduce false positives, and enhance its overall effectiveness.

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REFERENCES

[1]. Alex androids Plantelopoulous and Nikolaos. G. Bourbak is, "A Survey on Wearable sensor based system for health monitoring and prognosis," IEEE Transaction on system, Man and Cybernetics, Vol. 40, No.1, January 2010.

[2]. B.Chougula, "Smart girls security system," International Journal of Application or Innovation in Engineering & Management, Volume 3, Issue 4, April 2014.

[3]. Vamil B. Sangoi, "Smart security solutions," International Journal of Current Engineering and Technology, Vol.4, No.5, Oct-2014.

[4]. GC Harikiran, Karthik Menasinkai, SuhasShirol Smart Security Solution for Women based on Internet of Things (IOT) International Conference on Electrical, Electronics, and Optimization Techniques (ICEEOT) - 2016.

[5]. https://www.slideshare.net/iAbhishekSuman/pro ject-report-on-womensafetyandempowerment?Qid=1b357fab-11d4-439f-9178bc2a68ebe71c&v=&b=&from search=11https://epaper.timesgroup.com/OliveODN/TimesOfIndia/shared/ShowArticle,aspx?DocOIDEL%2F2017%2F12%2F01&entity=Ar02311&sk=1051FF23&mo de=text