PERSON DETECTION AND ABNORMALITY NOTIFICATION USING IOT

Realtime monitoring of persons health

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Abstract : Our world is developing more technologically as time goes on, and humanity will soon be dominated by technology. Henceforth, some fundamental measures should be made by individuals to develop the advanced next generation technologies. In this generation, we want to do replace manual work with Automation and try to do everything by Automation. The paper is intended to control electrical appliances and monitor the health condition of the human and give the notifications once the risk occurs. It offers a good platform that enables connecting all the gadgets that sense and regulate lights and fans to cut down on power consumption. In this project, the electronic appliances that is lights and fans are connected to the board, by this we can save electricity by consuming a less amount of electric power.

IndexTerms - **Person detection, Risk notification.**

I. INTRODUCTION

Our world is developing more and more technologically as the years go by, and humanity will eventually be mostly focused on technology. From this point forward, people should take a few essential actions to create the sophisticated next-generation technologies. In this generation, we want to do replace the manual works with Automation and try to be doing everything by an Automation. The paper is intended to control electrical appliances and monitoring the health condition of the human and give the notifications once the risk occurs. It offers a good platform that enables the connection of all the gadgets for sensing and regulating lights and fans in order to cut down on power consumption (or electricity wasting). In this project, the electronic appliances that is lights and fans are connected to the board, by this we can save the electricity by consuming a less amount of electric power.

The development of an automatic person detection system in an exam hall using IR sensors, which turns on the fan and light automatically, and also provides risk notification through pulse and accelerometer sensors using GSM technology, can significantly improve the safety and security of students during exams. The system involves the use of IR sensors to detect the presence of a person in the exam hall and automatically turn on the fan and light to provide comfortable conditions for the students.

In addition, the system is equipped with a pulse and accelerometer sensor, which can detect any unusual activity or risk factors in the students. For example, if a student is experiencing a medical emergency such as a heart attack, the pulse sensor can detect the abnormal heart rate and send an alert to the authorities through the GSM module. Similarly, the accelerometer sensor can detect if a student is exhibiting unusual movements, such as convulsions, and send an alert to the authorities for immediate medical assistance.

The system can be further enhanced by integrating it with facial recognition technology, which can identify students and prevent unauthorized individuals from entering the exam hall. Moreover, the system can be extended to provide real-time monitoring and recording of the exam hall, which can help to prevent cheating and other malpractices during exams.
This system can be allowed for automating the things in House, office, Bank, college and Hospital. The system can be easily handled and accessed remotely through an Internet of Things platform that is we can operate Lights and fans by using smart phone. The DS18B20 (Humidity and Temperature sensor) is used to measure the room's temperature, and the PIR sensor is used to detect human movements in the space as well as any closed situations.

NEED OF THE STUDY

This project is made to make it easier for doctors and nurses to monitor and test certain parameters, like body temperature, while also transmitting wirelessly using GSM module. It would also be used to keep an eye on the elderly and sick at home, especially when a guardian or relative is not there. Overall, the automatic person detection system using IR sensors and risk notification through pulse and accelerometer sensors using GSM technology can greatly enhance the safety and security of students during exams and prevent any untoward incidents from happening.

II. LITERATURE SURVEY

Smart cities, smart homes, education, healthcare, transportation, and military operations all depend on the Internet of Things (IoT). IoT applications provide safe and real-time remote patient monitoring to enhance people's lives, making them especially advantageous for the delivery of healthcare. Incorporating the Internet of Things, this review paper investigates the most recent developments in healthcare monitoring systems. Regarding their importance and the advantages of IoT healthcare, the work discusses the advantages of IoT-based healthcare systems. Through a systematic review of the literature, we present the most recent research on IoT-based healthcare monitoring systems. The literature evaluation contrasts the efficacy, efficiency, data protection, privacy, security, and monitoring of various systems. [1]

It offers a good platform that enables the connection of all the gadgets for sensing and regulating lights and fans in order to cut down on power consumption (or electricity wasting). The electronic devices, such as lights and fans, are connected to the board in this project, allowing us to conserve electricity by using less of it. This technology enables the automation of processes in the home, business, bank, college, and hospital. Through an Internet of Things platform, the system is easily manageable and accessible from a distance, allowing us to control lights and fans with our smartphones. The paper's goal is to regulate household electrical gadgets and appliances in a straightforward, low-cost manner. [2]

Our world is developing more technologically as time goes on, and humanity will soon be dominated by technology. Individuals should now do a few key actions in order to create the sophisticated next-generation technologies. In this regard, the suggested research project has created an Android application using a unit that includes a relay, logic level converter module, capacitive touch sensor module, ESP8266 Wi-Fi module, and Wi-Fi technology to operate switches. [3]

The proliferation of Internet of Things (IoT)-enabled portable medical equipment has led to the development of smart healthcare monitoring systems. Through the transition of healthcare from in-person consultation to telemedicine, the IoT and deep learning in the healthcare sector prevent diseases. Real-time physiological monitoring is essential to safeguard athletes from severe illnesses and injuries that could be fatal during practice and competition. We describe a real-time health monitoring system for the Internet of Things based on deep learning in this research paper. The suggested system measures vital indicators with wearable medical equipment and applies many deep learning algorithms to glean useful data. We have chosen Sanda athletes as our case study for this reason. [4]

an intelligent test hall monitoring system that uses GSM technology, IR sensors, and pulse sensors to alert users to risks. The technology can automatically manage the fan and light in the exam room, recognise when students are present, and send risk alerts to the appropriate authorities in case of an emergency. [5]

an automatic person detection and monitoring system for an exam hall using IR sensor and GSM technology. The system can detect the presence of students in the exam hall and control the fan and light automatically. It also sends SMS alerts to the authorities in case of any unusual activity or medical emergencies. [6]

an intelligent exam hall monitoring system using IR sensor, pulse sensor, and accelerometer sensor for risk notification. The system can detect the presence of students in the exam hall, control the fan and light automatically, and send risk alerts to the authorities in case of any emergency. [7]

proposes an automatic person detection and monitoring system for an exam hall using IR sensor and GSM technology. The system can detect the presence of students in the exam hall and control the fan and light automatically. It also sends SMS alerts to the authorities in case of any unusual activity or medical emergencies. [8]

III. EXISTING METHODOLOGY

In existing system the identification of the person is taken as a separate data which will be used for manipulating the information about number of persons utilized the area. Monitoring students health, Hospitals and other medical circulatory areas use pulse checking medical instruments only in case of emergencies, however the checking of pulse is implemented only in the case of medical emergencies. The abnormality of a patient or a person can be identified only by analyzing all the above data such as pulse and movements. This proposed system concentrate to collaborate the user conditions along with the automation with IoT.
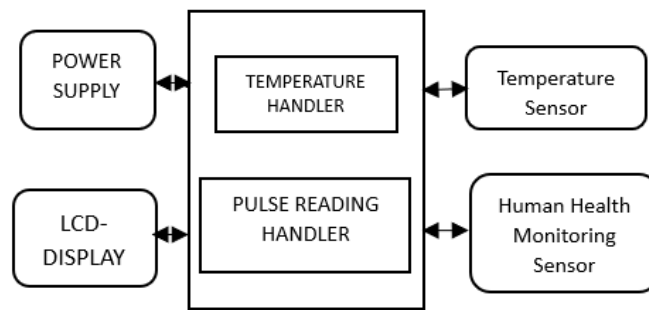
Fig 1. Block diagram for existing methodology.

IV. PROPOSED METHEDOLOGY

The proposed system is to design and develop a system that can assist people through SMS commands for the emergency. If the sensor read the abnormal reading from the Human, a short message service (SMS) was sent to the cell phone through Global System for Mobile (GSM) to notify immediately the family or doctor. A Health Monitoring System (HMS) is a sophisticated technology and an alternative to the traditional management of Human and their health. It consists of a wearable wireless device with sensors, similar to a bracelet, that is connected to an application so that a doctor or anyone in an emergency can access the medical data. The hospital database receives sensor data on a regular basis from the sensor network, where the sensor nodes are outfitted with various biometric sensors, and the sensor data is then sent to the hospital's webserver.
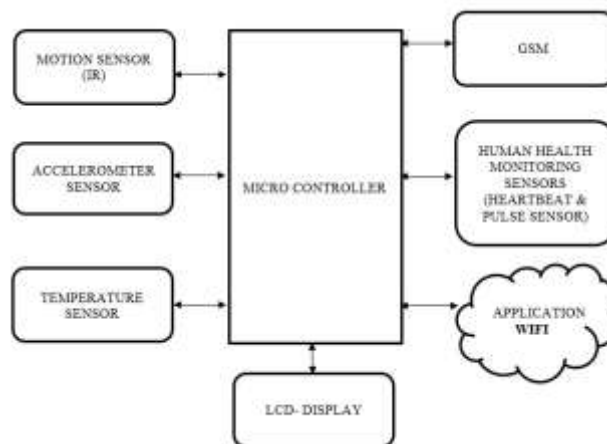

Fig 2. Block diagram for proposed methodology

V. MODULE DESCRIPTION

1. **IR Sensor Module**: This module includes IR sensors that are placed strategically around the exam hall to detect the presence of a person. Once a person is detected, the system sends a signal to the microcontroller.

2. **Microcontroller**: The microcontroller receives the signal from the IR sensor module and activates the fan and light in the exam hall automatically to provide comfortable conditions for the students. The microcontroller also communicates with the pulse and accelerometer sensor module to send alerts in case of any unusual activity.

3. **Pulse Sensor Module**: The pulse sensor module includes a pulse sensor that monitors the pulse rate of the students during the exam. If the system detects any unusual activity or a change in the pulse rate of the students, it sends an alert to the authorities through the GSM module.

4. **Accelerometer Sensor Module**: The accelerometer sensor module includes an accelerometer sensor that monitors the movements of the students during the exam. If the system detects any unusual movements, such as convulsions, it sends an alert to the authorities through the GSM module.

5. **GSM Module**: The GSM module is used to send alerts to the authorities in case of any unusual activity or medical emergencies. The module sends SMS alerts to the pre-configured mobile numbers of the authorities.

6. **Fan and Light Module**: The fan and light module includes a fan and light that are turned on automatically when a person is detected in the exam hall. This module provides comfortable conditions for the students during the exam.

IV. RESULTS AND DISCUSSION

In conclusion, the system is an innovative and practical solution to enhance the efficiency of exam management and ensure a secure and comfortable environment for students. The use of IR sensors for automatic person detection eliminates the need for manual monitoring of exam halls, thereby reducing the workload of invigilators and allowing them to focus on other tasks. The pulse sensor and accelerometer sensor provide additional safety features, allowing the system to detect and notify concerned

authorities about any abnormal physiological activity or motion that might indicate risk or danger. Furthermore, the integration of GSM technology enables real-time communication between the system and concerned authorities, providing an efficient mechanism for emergency response.

The system can send alerts via SMS to the designated authorities, ensuring that they are notified immediately and can take appropriate action. But there are still some problems that need to be fixed. One of the main challenges is the accuracy and reliability of the sensors, particularly in detecting abnormal physiological activity or motion. Another challenge is the cost and complexity of implementing the system on a large scale. In summary, the automatic person detection system in exam halls with IR sensor, pulse sensor, accelerometer sensor, and GSM technology is a promising solution for ensuring the safety and well-being of students during exams. While there are still some challenges that need to be addressed, the system's potential benefits far outweigh its limitations. With further research and development, the system can be optimized to provide a more reliable and efficient solution for exam management and student safety.

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