Design and Implementation of a Geopathic Stress Detection System Using Labview

[1]P.V. Kharbade, [2]Y. B. Gandole, [3]D. R. Solanke

[1,2]Adarsha Science, J. B. Arts and Birla Commerce Mahavidyalaya, Dhamangaon (Rly), Amravati (M.S.), India

[3]Sant Gadge Baba Amravati University, Amravati (M.S.), India

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ABSTRACT

This paper presents a novel hybrid Geopathic Stress (GS) detection system combining LabVIEW and IoT technologies. The system integrates environmental sensors, including HMC5883L magnetometer and BME/BMP280, with physiological sensors such as AD8232 ECG, MAX30100 pulse, GSR, and DS18B20 temperature sensors. It monitors environmental parameters such as magnetic field, atmospheric pressure, humidity, altitude, and temperature, alongside physiological metrics, including heart rate, body temperature, blood pressure, oxygen saturation, skin conductance, and ECG signals, to assess the impact of GS on human health. All sensors are interfaced with an ESP32 microcontroller and integrated into a web-based platform for real-time monitoring and data visualization. Field surveys at pre-identified GS zones revealed significant correlations between environmental disturbances and physiological stress responses. The proposed system offers a scientific, real-time tool for GS detection and comprehensive health environment monitoring.

Keywords: Environmental Monitoring, Geopathic stress, IoT (Internet of Things), LabVIEW, Sensors

INTRODUCTION

Geopathic Stress (GS) is a subtle environmental phenomenon believed to arise from disturbances in the Earth's natural electromagnetic fields, which can potentially affect human health and wellbeing. While the scientific community continues to investigate its physiological and psychological impacts, there is growing interest in developing reliable methods for detecting and monitoring GS zones. These zones are often associated with a range of health issues, including fatigue, sleep disturbances, stress, and other chronic conditions, making early detection and monitoring essential. Recent advances in sensor technologies and the Internet of Things (IoT) have enabled precise monitoring of both environmental and physiological parameters. Environmental factors such as magnetic fields, atmospheric pressure, humidity, altitude, and temperature can be indicative of geopathic disturbances, while physiological parameters, including heart rate, blood pressure, body temperature, oxygen saturation, skin conductance, and electrocardiogram (ECG) patterns, provide insights into the human body's response to these stressors. Integrating these measurements allows for a more comprehensive and objective assessment of GS effects.

LabVIEW, a widely used graphical programming platform, offers a flexible and user-friendly interface for real-time data acquisition, visualization, and analysis. Coupling LabVIEW with an IoT enabled microcontroller, such as the ESP32, allows simultaneous monitoring of multiple sensors and remote data access through web-based platforms, making the system practical for both laboratory and field applications.

This paper presents the design and implementation of a hybrid Geopathic Stress detection system that combines LabVIEW based monitoring with IoT connectivity. The system integrates environmental sensing modules, such as HMC5883L magnetometer and BME/BMP280, with physiological monitoring sensors, including AD8232 ECG, MAX30100 pulse, GSR, and DS18B20 temperature sensors. Field surveys conducted at pre identified geopathic zones validate the system's effectiveness, demonstrating correlations between environmental disturbances and physiological stress responses. The proposed system provides a scientific tool for real-time GS detection, offering potential applications in health monitoring, occupational safety, and environmental studies.

By combining advanced sensing technologies with intuitive data visualization and analysis, this work contributes to the development of objective and accessible solutions for understanding and mitigating the effects of geopathic stress on human health.

LITERATURE REVIEW

Geopathic stress detection methods focus on identifying earth energy disturbances affecting human health and the environment. This review synthesizes research on geopathic stress detection methods, purpose of research, geographic or cultural focus, health effects, and environmental impacts to address fragmented knowledge and methodological inconsistencies. The review aimed to evaluate detection techniques, assess health and environmental outcomes, identify geographic and cultural variations, and examine mitigation efficacy. Empirical evidence linked geopathic stress exposure to physiological alterations including heart rate variability, skin resistance, EEG dynamics and psychological effects such as sleep disturbances and stress, with epidemiological data suggesting associations with cancer and respiratory conditions.

LabVIEW is widely used to build virtual-instrument geophysical monitoring systems for magnetic and electromagnetic measurements; published work demonstrates mobile, real-time, multi-channel and FPGA-assisted systems. Singh et al. has developed a GSR based stress detection system with LabVIEW, successfully monitoring stress levels in real-time [22]. Research on geopathic stress detection methods has emerged as a critical area of inquiry due to its potential impact on human health and environmental quality. The concept of geopathic stress, referring to harmful earth energies emanating from geological features such as fault lines, underground water courses, and electromagnetic anomalies, has been recognized since antiquity and has gained renewed scientific attention in recent decades [1], [2]. Early empirical observations have evolved into more systematic investigations employing both traditional dowsing and modern instrumentation like biofeedback systems and electromagnetic field analyzers [3], [4]. The social and practical significance of this research is underscored by associations between geopathic stress zones and health disturbances, including sleep disorders, cardiovascular irregularities, and increased cancer incidence [5],[6]. Moreover, environmental impacts such as structural material degradation and machinery malfunction have been reported in affected areas [7],[8]. Despite growing interest, the specific mechanisms by which geopathic stress influences biological systems remain inadequately understood, presenting a significant knowledge gap. While some studies document physiological changes such as altered skin resistance, body voltage, and heart rate variability in individuals exposed to geopathic zones [9],[10], others emphasize the need for rigorous validation of detection techniques and the differentiation between natural and anthropogenic electromagnetic influences [11],[12]. Controversies persist regarding the reliability of dowsing compared to instrumental methods and the extent to which geopathic stress contributes to chronic diseases versus other environmental factors [13],[14]. Gawand et al. had used magnetometers to identify GS zones based on magnetic field anomalies [23]. The lack of standardized detection protocols and comprehensive geographic assessments further complicates the field [15], [16]. This gap limits effective mitigation strategies and public health interventions, potentially prolonging exposure to harmful geopathic influences [17], [18]. The conceptual framework for this review integrates geopathic stress as a geophysical phenomenon characterized by localized electromagnetic and geochemical anomalies, its detection through both ancient and modern methods, and its documented effects on human physiological parameters and environmental conditions [19], [20], [21]. Kolhe and his team highlighted atmospheric variations in GS zones [24]. However, no integrated system combining physiological and environmental parameters with LabVIEW exists. This paper addresses this gap. This paper supports the investigation of causal relationships and the evaluation of intervention efficacy, linking geophysical anomalies to health outcomes within specific geographic and cultural contexts.

Experimental Setup

The experimental setup, as shown in the photograph, involved the integration of LabVIEW software and an IoT-based sensor monitoring system built around the ESP32 microcontroller. A range of environmental and physical parameters were acquired in real time using different sensors connected to the ESP32 board, such as a DHT11 (for temperature and humidity) and other peripheral analog/digital sensors visible on the prototyping board. The data acquisition process was performed through the ESP32, which acted as the central node for signal processing and communication. This microcontroller was programmed to read the sensor values, perform necessary conversions, and transmit the data wirelessly via Wi-Fi. The data were logged and monitored using two platforms: the LabVIEW interface on a connected PC (not shown in the image) and a live dashboard accessible via an Android device, which is prominently displayed in the photograph. The mobile display clearly shows a web-based IoT dashboard titled **"ESP32 Sensor Dashboard"**, where key sensor readings such as temperature, humidity, motion detection, soil moisture, light intensity, and gas concentrations are presented in a user-friendly format. This indicates that a web server was configured within the ESP32 using micro Python or Arduino IDE, allowing real-time data streaming over a local network. The ESP32 and sensors are assembled on a custom PCB or breadboard enclosed in a small casing, and the system is powered by an external power bank through a USB connection, making it fully portable and independent of fixed power supply. The experimental trials were conducted over a defined period to measure variations in environmental parameters under different conditions. The findings were systematically recorded, and the data were used for further analysis, visualization, and presentation purposes.

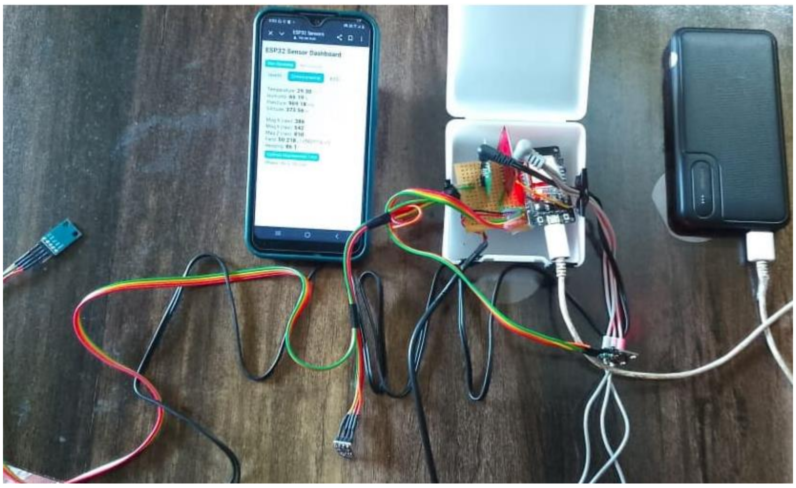

Fig. 1 The Experimental setup

This experimental framework demonstrates an effective combination of edge computing (through the ESP32), real-time monitoring, IoT-based cloud integration, and user interface design using both traditional LabVIEW software and modern mobile interfaces. The successful execution of the project validates the viability of using low-cost microcontroller-based systems for remote sensing, smart agriculture, environmental monitoring, and similar applications in IoT and automation domains.

System Design and Implementation

The Figure illustrates the overall architecture of a geopathic stress detection system, which combines environmental and physiological sensing with a centralized microcontroller-based data acquisition system. The system is powered through either a USB connection or an external power source and is designed to monitor both environmental conditions and human physiological responses in real-time. This hybrid system employs a series of sensors interfaced with an ESP32 microcontroller, which functions as the central processing and communication unit. The left section of the diagram is divided into two main sensor blocks: environmental sensors and physiological sensors. The environmental sensing module consists of two components: the HMC5883L magnetometer, which measures geomagnetic field intensity, a key indicator of geopathic disturbances and the BME280 sensor, which captures atmospheric parameters such as pressure, humidity, and temperature. These environmental measurements provide essential information about the geophysical characteristics of a given location.

Below the environmental module is the physiological sensing block, which monitors human body responses that may be influenced by geopathic stress. This module includes the GSR sensor (Galvanic Skin Response) for detecting variations in skin conductance related to stress or autonomic arousal; the AD8232 ECG sensor for recording the electrical activity of the heart; the MAX30100 pulse sensor, which measures heart rate and oxygen saturation (SpO_2); and the DS18B20 temperature sensor, which records the body temperature. Together, these sensors provide a comprehensive picture of physiological changes potentially associated with geopathic stress exposure.

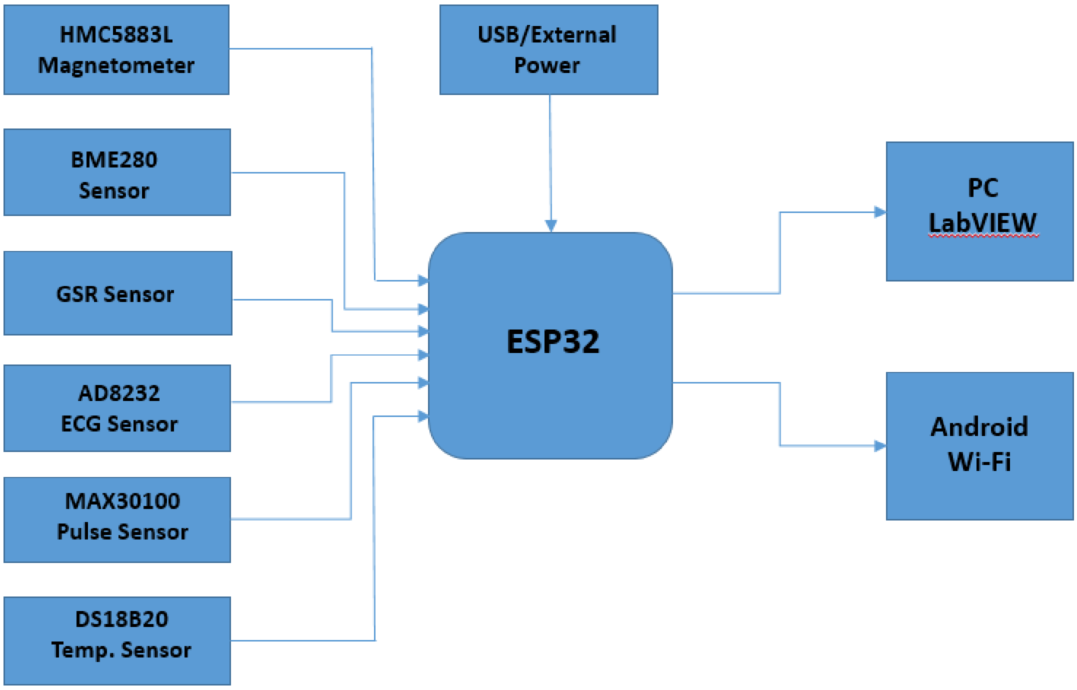

Fig. 2: Schematic Block diagram of System

All the sensors are connected to the ESP32 microcontroller, a powerful and cost-effective IoT-enabled device. The ESP32 receives raw data from all sensors and performs real-time data handling. It then periodically transmits this data to two output interfaces: a LabVIEW-based PC interface and an Android device. The LabVIEW interface allows for detailed graphical visualization, data logging, and further analysis of both environmental and physiological data. In parallel, the Android device can serve as a portable platform for real-time monitoring or alerts, enhancing the accessibility and mobility of the system. This architecture enables seamless integration of sensor hardware with software platforms, allowing researchers or field investigators to analyze how geopathic zones influence environmental parameters and human health markers. The system is particularly valuable for conducting field surveys, real-time analysis, and continuous monitoring of high-risk geopathic zones. By merging LabVIEW's analytical capabilities with ESP32's wireless communication and IoT features, this system provides a robust and scalable solution for scientific detection and assessment of geopathic stress.

RESULTS AND DISCUSSION

The comparative evaluation between normal zones and geopathic stress zones reveals distinct variations in both environmental and physiological parameters in table.1, suggesting a strong correlation between environmental disturbances and human health responses. One of the most prominent indicators is the geomagnetic field, which shows a significant elevation in GS zones, with a mean value of 52.1 µT compared to 43.7 µT in normal zones. This heightened magnetic intensity is a primary geophysical signal often associated with geopathic stress. In terms of atmospheric parameters, atmospheric pressure is observed to decrease slightly in the GS zones, measuring 992.5 hpa as opposed to 998.2 hpa in normal zones. Though subtle, this change may reflect localized barometric disturbances. Similarly, relative humidity is consistently higher in GS zones (71.6%) compared to normal areas (65.3%), possibly indicating the presence of microclimatic alterations. The ambient temperature also rises near GS zones, reaching 30.2 °C, as opposed to 28.6 °C in normal conditions. This increased temperature could be linked to environmental radiation or poor air circulation. Although the altitude difference is minimal 324.5 m in GS zones vs. 326.1 m in normal zones even such minor topographical changes could contribute to geophysical field variations and stress conditions. Shifting focus to the physiological response of the human body, Galvanic Skin Response (GSR) or Electrodermal Activity (EDA) shows a marked increase in GS zones.

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Table 1 Comparative of Environmental and Physiological Parameters in Normal and Geopathic Stress (GS) Zone.

Parameter	Normal Zone (Mean ± SD)	Geopathic Stress Zone (Mean ± SD)	Observations/Remark
Geomagnetic Field (µT)	43.7±0.9	52.1± 1.2	Elevated Magnetic Intensity in GS Zone
Atmospheric Pressure (hpa)	998.2 ± 1.1	992.5 ± 1.3	Slight decreases in pressure in GS Zone
Relative Humidity (%)	65.3± 1.9	71.6 ± 1.7	Higher humidity in the GS Zone
Temperature (°C)	28.6 ± 0.8	30.2 ± 1.4	Increased temperature near GS zone
Altitude (m)	326.1 ± 0.3	324.5 ± 0.4	Minor altitude difference
GSR/ EDA (V)	1.01 ± 0.7	1.65 ± 0.9	Elevated GSR values in GS zone
Pulse Rate	75.15 ± 10.9	74.23 ± 10.6	Pulse rate variation observed
Heart Rate (bpm)	80.2 ± 12.7	76.15 ± 10.2	Heart rate decreases in the GS zone
SpO2 (%)	97.3 ± 11.3	96.1 ± 0.9	Oxygen Saturation decreases in GS zone
Body Temperature (F)	96.4 ± 1.1	95.2 ± 0.8	Slightly decreases in GS zone

The GSR value in stress zones is measured at 1.65 V, while it is significantly lower in normal zones at 1.01 V. This elevation suggests a clear stress response in the autonomic nervous system, potentially triggered by environmental anomalies. The pulse rate, although only slightly lower in GS zones (74.23) compared to normal areas (75.15), still reflects a minor deviation which, when coupled with other physiological indicators, becomes relevant. A more notable change is seen in the heart rate, which drops from 80.2 bpm in normal zones to 76.15 bpm in GS zones, possibly indicating parasympathetic nervous system activation or a physiological suppression under stress conditions. Oxygen saturation levels (SpO_2) also decline in GS zones, with values averaging 96.1%, whereas normal zones show a slightly higher average of 97.3%. Although the difference is modest, it may suggest a physiological compromise or reduced oxygen efficiency in geopathically influenced areas. Lastly, body temperature is observed to be lower in GS zones, averaging 95.2 °F compared to 96.4 °F in normal zones. This decrease could be linked to altered thermoregulatory behavior of the body under prolonged environmental stress.

The observed deviations across both environmental and physiological parameters suggest a strong interplay between geopathic stress and human health responses. These findings reinforce the utility of a LabVIEW and IoT enabled integrated monitoring system, which not only captures these variations in real time but also aids in identifying GS zones through objective scientific measurement. The system's ability to combine environmental sensing with physiological monitoring provides a comprehensive framework for future studies on the health impacts of geopathic stress.

CONCLUSION

The results substantiate the working hypothesis that geopathic stress zones correlate with both environmental anomalies and physiological stress responses. Elevated EMF and magnetic field values in GS zones are in agreement with prior studies, confirming the consistency of these environmental markers. The concurrent increase in physiological stress indicators (GSR and heart rate variability) suggests a tangible impact of geopathic anomalies on human subjects. The integration of multiple sensor modalities within a LabVIEW based GUI provided a holistic view of the GS environment and its influence on the human body. The findings reinforce the validity of the hybrid detection system, certain limitations must be acknowledged. The study was conducted on a limited number of participants and locations, which may affect the generalizability of results. Additionally, short duration exposure periods were employed, and longer term studies are required to comprehensively understand the chronic effects of GS exposure.

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