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Stress Level Detection in the IoT

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A B S T R A C T

Physiological aspects of a person are impacted by psychological stress. Long-term stress exposure might have negative repercussions that may necessitate costly therapies. People with borderline personality disorder or schizophrenia are particularly vulnerable to the deadly effects of acute stress. to manage one's own significant health issue within the context of intelligent healthcare. The learning system is programmed to track a person's degree of stress by measuring their body temperature, rate of movement, and perspiration production when engaged in physical exercise.

Keywords: Aurdino,GSR,Stress level,Prediction,IOT

1. Introduction

In today's world, stress is a daily occurrence. Even though it can cause severe physical and psychological problems, it is challenging to pinpoint its causes. An individual may experience some degree of stress due to the human contexts they are in, such as their home, workplace, or society. Our bodies can respond to stress in a variety of ways; these responses are mostly categorised by factors like heart rate (HR), temperature, and pulse. The 'Thing Speak' IOT platform is used in this work. By conducting an evaluation study on the performance of GSR with respect to stressful circumstances, physiological sensing-based stress analysis during assessment was investigated. Along with GSR, other physiological variables for stress assessment include blood pressure and heart rate variability (HRV).

2. Literature Review

1.Basel Khikia et al. developed a wristband for dementia patients, consisting of GSR sensor, light sensors and accelerometer, to effectively classify “Stressed” or “Not stressed” events. They performed analysis on patients while staff making observation on their behavioral patterns. From experiment, they found that the sensor data analysis and the staff observation correlate well and they showed that different scenarios are being served by different stress level thresholds SOLAR BASED E-UNIFORM FOR SOLDIERS Asist.prof.Sridevi S.H.

2.Seoane, Fernando, et al. focused on developing a wearable device for combatants to evaluate the physical, emotional and mental stress experienced during a combat . They partitioned their project into two phases and successfully completed the first phase in this paper. First phase focused on to identify the best biomedical parameter to analyses the stress and the second phase to develop a sensorized wearable system for the measurement and analysis of the biomedical parameter to obtain different stress levels experienced by the combat. From the result of first phase they successfully found out the best bio-signal to assess the mental state of a person is ECG because vital parameters such as heart rate and respiratory rate can be obtained from ECG, which is highly automated by sympathetic nervous system.

3.Adnan Ghaderi et.al Presented the stress level of user using the biological signals based on the sensor like heart rate, respiratory, and Hand and foot etc. The various features were extracted at different time interval. For the classification KNN and SVM approach were used and obtained the exact stress level. Yuchae Jung et.al. evaluate the mental stress and anxiety based on the multimodal sensors and measure the physical changes in the different parts in the human body.

3. Idea and Methodology:

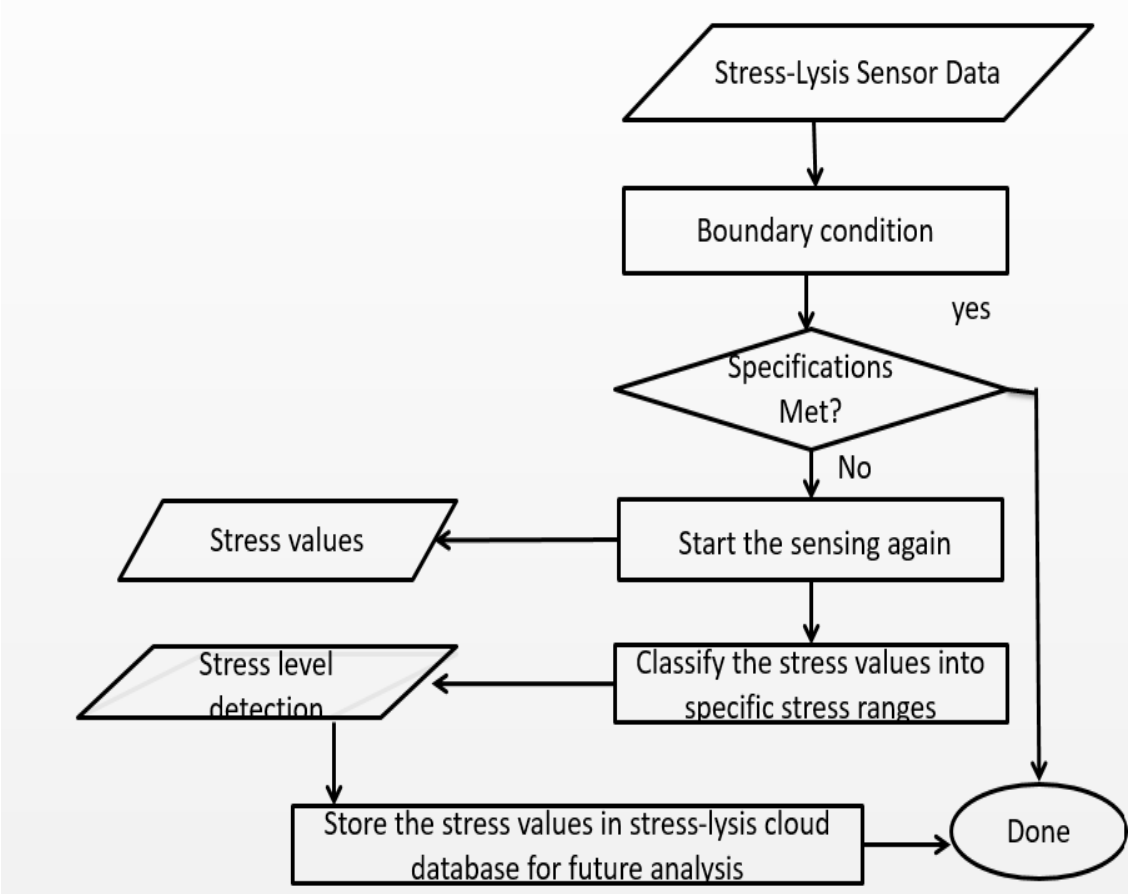
The Proposed Stress Monitoring system is shown in the above figure this device is used in the aurdino board as a main processing circuit because we are intrested in specific stress related to human stress & pressure we designed our system for measuring the rate the rate of heart beat respiratory by using sensor to determining the emotion state of the subject, when the participants wear the equipment by the different swnsors we can able to display the pressure of stress of a participants to monitor the device we are using embedded as a main language it can be implemented in threee stages.

4.SOFTWARE USED :

EMBEDDED C:

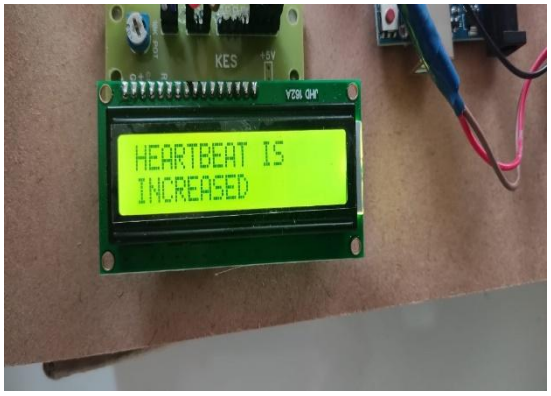
The C Standards Committee created Embedded C as a set of language extensions for the C programming language to solve issues of commonality between C extensions for various embedded devices. In order to implement more advanced microprocessor features like fixed-point arithmetic, many different memory banks, and fundamental I/O operations, embedded C programming often necessitates nonstandard additions to the C language. A Technical Report created by the C Standards Committee, which was most recently updated in 2008[1] and revisited in 2013[2], established a uniform standard that all implementations must follow. It offers a variety of features not found in standard C, such as named address spaces, fixed-point arithmetic, and fundamental I/O hardware addressing. The majority of standard C's syntax and semantics are used by embedded C, such as main().

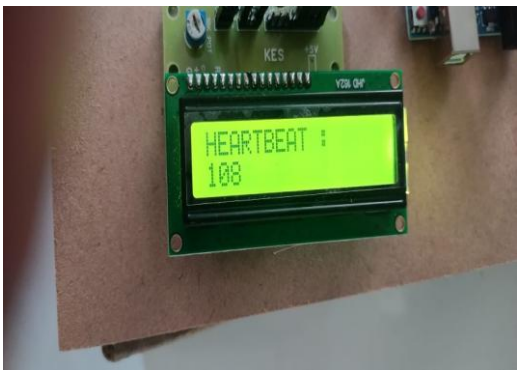
OVER ALL DESIGN:

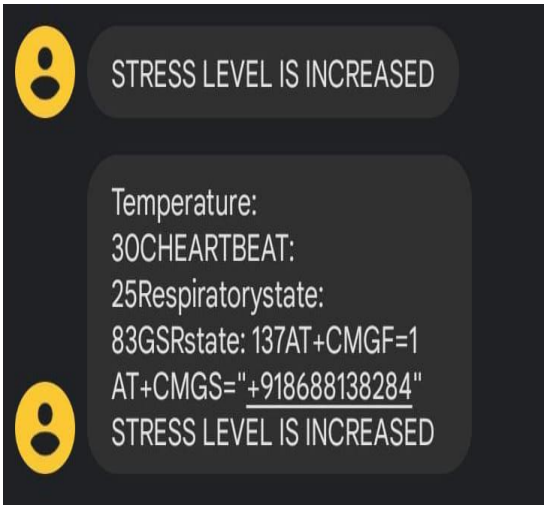


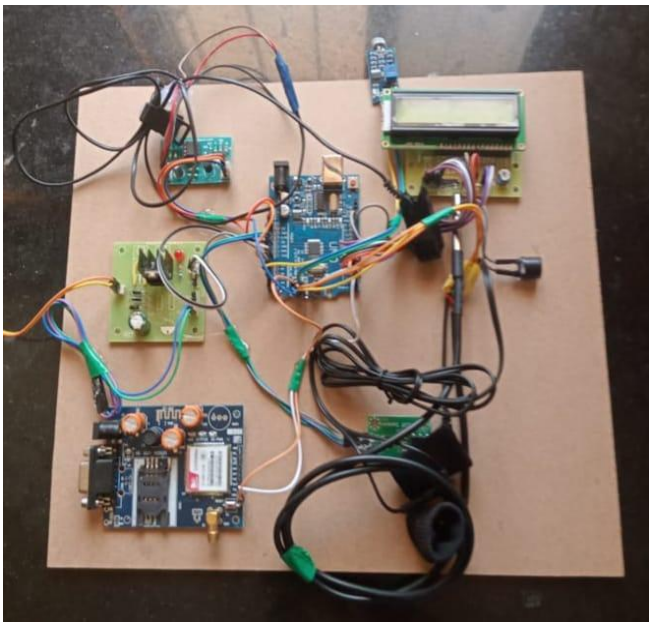
5. Outputs and Results:

The primary microcontroller and Aurdino serve as the input and are connected to the wearable sensors. The final outcomes include increased respiration, heart rate, GSR, temperature, and other parameters.









6. Conclusion

The rise of online workers has been gradually increasing due to covid-19 pandemic. It is important to have healthy lifestyle while working from home. As we discussed throughout the paper our application help to users to prevent stress. The accuracy levels and outputs shown in Results and discussion section shows efficiency of the system and how it will assist to provide a great service

Mr.RAKESH YADAV KODARI, guide of the project has guided us throughout the project in each and every situation.

The team B.CHAHNITHA,V.SREENISHA,V.SREEVANI,B.VASAVI(myself) has worked in development of code and various modules of the

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