

Stress Detection Of Person Using Pre-Stressed Reinforcement

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ABSTRACT

Stress has become a common emotion that students experience in day to day life. Several factors contribute to their stress and proven to have a detrimental effect on their performance. As a result of higher student demands, inadequate time control, and financial considerations, tension has become pervasive in the academic climate. It has a negative impact on their quality of living, impacting both their physical and emotional well-being. If left untreated for a long time, it may lead to depression and suicidal ideation. Physiological signs and facial expression techniques are used to identify discomfort in the traditional sense. Hormone testing, for example, has the drawback of being invasive.. This study aims to use EEG to detect stress in students because EEG has a strong correlation with stress. The EEG signal is pre-processed to eliminate artefacts, and the Hilbert-Huang Transform is used to retrieve specific time-frequency characteristics. A hierarchical Support Vector Machine (SVM) classifier is used to control the derived features in order to detect stress levels.....The findings demonstrated the system's ability to sense discomfort in real time using their brain waves.

Introduction

Students deal with pressures on a daily basis. It's a necessary evil brought about by strenuous physiological exercise. It is not always a pessimistic operation. However under certain circumstances, it becomes a threat to mental health. Stress may arise due to physical or emotional demands. Lifting heavy weights or putting in a lot of training time for sports can put a lot of physical strain on the body. When the body is subjected to physical stress, the sympathetic nervous system is activated in order to maintain balance.. The stress hormones are released and regulate energy stores leading to rise in blood pressure, increase in heart rate. Physical stressors are transient and manageable. Workplace pressure, hitting deadlines, tests, and other factors may cause emotional stress. This work-related stressors are difficult to respond to and manage. As they continue, chronic stress develops, which is a significant risk factor for cardiovascular diseases such as heart attack..

EXISTING SYSTEM

In today's fast moving world, the rate of death is increasing day by day due to unmonitored high stress level. In this current system, there is no proper method in place to diagnose the stress level, physical and mental health condition thus more death occur. So in order to overcome these drawbacks in existing system we propose an advance driver assistant secure system.

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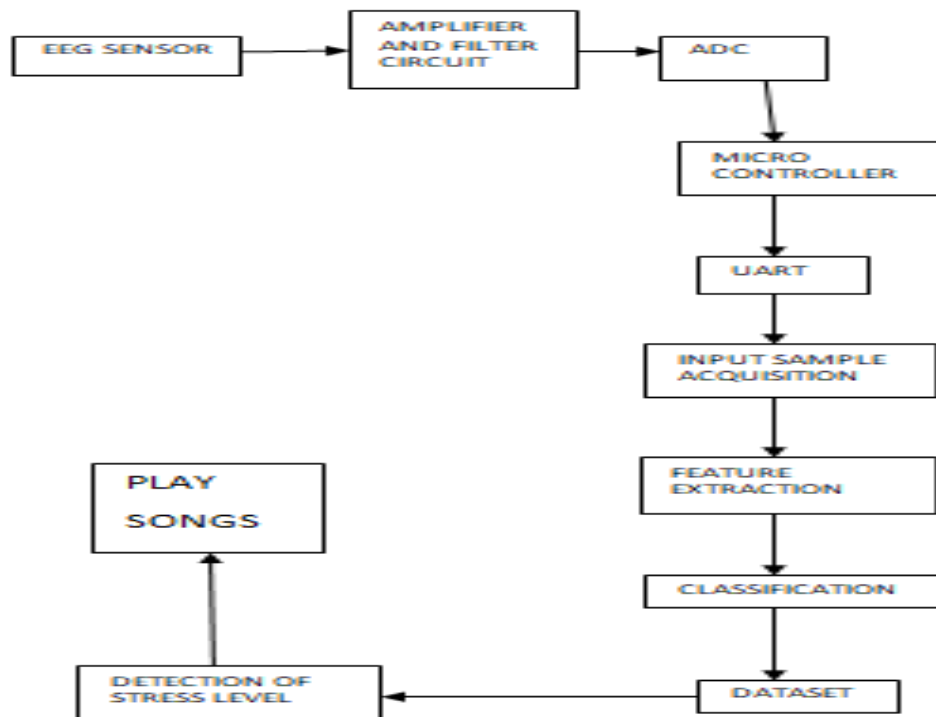
STRESS DETECTION OF PERSON USING PRE-STRESSED REINFORCEMENT

PROPOSED SYSTEM:In proposed system, The EEG sensor allows the user to measure the electrical activity of brain. The sensor value will be implemented with MATLAB software so that the value will be examined with sample acquisition and classification will be done and then stress level will be identified then required prevention actions such as soft music playback will be played.By using this technology, stress level of the person can be avoided as much as possible and help to lead the healthy life[5-10] .

DESCRIPTION:

We are using 3 EEG electrode which is placed in head .with the help of EEG electrode we can simulate the stress level . first we can collect our data with the help of EEG electrode and the data is transmitted to amplifier which can amplify to 0 -5v and then transmitted to filter circuit to avoid the noise signal and unwanted signals . Then the analog to digital converter is helps to convert the analog signal to digital signal and passed through microcontroller 0-5 v then the power supply is passed with UART cable simultaneously by using UART cable we can transmit a data to the matlab software . Thus the input signal is acquisition and then converted to feature extraction by using the embedded software and then classifying the signal with the help of data set and the software is identified if the stress level is found and graph is plotted,When the tension level reaches a certain level, the songs will be played.

BLOCK DIAGRAM



PRODUCT DESCRIPTION

The ATmega328P is the basis for the Arduino Uno microcontroller module. A USB connector, a power port, an ICSP header, and a 16 MHz quartz crystal are all included, as are 14 optical input/output pins (including 6 PWM outputs), 6 analogue inputs, and a 16 MHz quartz crystal.

This board has a reset button. It comes with everything you'll need to get started with the microcontroller, including a USB cable and an AC-to-DC adapter. A CPU, another Arduino block, or other microcontrollers can all be communicated with using Arduino Uno.



Arduino UNO

EEG SENSOR:

It is a test that uses small metal disks (electrodes) fixed to the scalp to detect electrical activity in the brain. EEG is often used in clinical settings to detect differences in brain function that may be helpful in diagnosing brain abnormalities, especially epilepsy or another seizures are a form of epilepsy. Electroencephalography (EEG) is a procedure that uses small metal discs to detect electrical activity in the brain (electrodes).. And when you're sleeping, your brain cells interact with each other via electrical impulses. This activity appears as wavy lines on an EEG recording.



FIG 5.1.2 EEG SENSOR

Embedded c

ABOUT EMBEDDED C

High-level language programming has long been in use for embedded-systems development. Assembly programming, on the other hand, continues to be popular, particularly in systems that use a digital signal processor (DSP). DSPs are frequently programmed in assembly by programmers who are intimately familiar with the processor architecture.. Despite the drawbacks of assembly programming as opposed to high-level language programming, success is the driving force behind this activity.

For example, if video encoding consumes 80% of the CPU cycle budget instead of 90%, there are twice as many cycles available for audio processing..Many real-time applications that use DSP processors are characterised by this coupling of output to end-user functionality. DSPs have a highly specialized architecture to achieve the performance requirements for signal processing applications within the limits of cost and power consumption set for consumer applications. DSPs, unlike traditional RISC architectures, provide a storage path with memory-access units that feed directly into the arithmetic units. Address registers are taken out of the general-purpose register file and placed next to the memory units in a separate register file.

The Embedded C specification expands the C language to allow freestanding embedded processors to take advantage of multiple address space functionality, named address spaces, and direct access to processor and I/O registers.These characteristics are typical of the small embedded processors used in most consumer goods.Fixed-point and saturated arithmetic, segmented memory fields, and hardware I/O addressing are all new features of Embedded C.. The definition we provide here is from the perspective of language design, rather than from the perspective of programmers or processor architecture..

MATLABSOFTWAREMATLAB is an integrated framework with an array as its basic data feature that does not require dimensioning. This allows you to solve a wide variety of technical programming problems in a fraction of the time it takes to write a programme in a noninteractive scalar language. As matrix and vector formulations are concerned, languages like C or FORTRAN come to mind.Matlab is an acronym for matrix laboratory.MATLAB was designed to make the LINPACK and EISPACK projects' matrix applications more available.. MATLAB also uses tools from the LAPACK and ARPACK programmes, which together reflect the state-of-the-art of matrix computing software..

With the help of many developers, MATLAB has developed over time. It is the basic teaching aid for beginner and advanced mathematics, engineering, and science courses in university settings.. For high-productivity research, growth, and analysis in industry, MATLAB is the tool of choice.Toolboxes are a special category of MATLAB solution for specific applications. The ability to understand and adapt advanced technologies is crucial to the majority of MATLAB users, so toolboxes are essential. M-files called toolboxes extend the MATLAB environment to address specific problems.

Signal processing, control systems, neural networks, fuzzy logic, wavelets, and simulation are all terms that come to mind when thinking about signal processing. and a wide range of other areas all have toolboxes available...

CONCLUSION

These system providing useful solution while making the stress detection by using IOT. The cost of the system is less and it gives the reliable output as compared to another system which useful for society. To have safe and It is mainly implemented on a long scale for the better results and problem free solutions in the future.

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STRESS DETECTION OF PERSON USING PRE-STRESSED REINFORCEMENT

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