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ATTENTION DEFICIT HYPER ACTIVITY DISORDER DETECTION AND PREVENTION

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Abstract**:** *The whole world has changed after COVID-19 stress , depression , anxiety has become a part of our life, statistics says many people have taken their life during lockdown, unable to cope-up with stress during tough times has forced them to take their lives which affects their whole family, Our Project focuses on developing a portable device which helps to reduce stress, anxiety with therapeutic solution which improves their blood circulation in body and makes them feel positive and relaxed and divert them from having these thoughts.*

1 Introduction:

Human stress is an imbalance state of an individual. Stimulus threatening homeostasis state of the individual is regarded as a stressor, which can be classified into physical one or psychologic one. It is impossible to avoid stress in a working environment. Nevertheless, if people are informed of their stress levels, they may become empowered to take some pre-emptive measures in order to minimize stress so that stress balance is achieved before it results to serious health problems. Stress management can be complicated and confusing because there are different types of stress — acute stress, episodic acute stress, and chronic stress. It comes from demands and pressures of the recent past and anticipated demands and pressures of the near future. Most people experience acute stress during their everyday life. It is a primal flight-or-fight response to immediate stress factors and is not considered harmful. When the frequency of these occurrences increase, physiological symptoms might occur. stress is a pattern of negative physiological states and psychological responses occurring in situations where individuals perceive threats to their well-being, which they may be unable to meet When we perceive a threat, our nervous system responds by releasing a flood of stress hormones, including adrenaline and cortisol. These hormones rouse the body for emergency action. In some cases, it is necessary to collect feedback in

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order to control this symptom because it can become dangerous in certain situations. Therefore, it is necessary to build a device to detect stress. Wearable smart sensors are widely used nowadays to capture the physiological and behavioural data in our day-today lives to correlate with stress. But there are hardly any clinical-grade physiological monitors that can accurately quantify stress levels across individuals.

2 Problem System:

Heavy medications and strong injections are given to the subject to keep them in drowsiness state and using invasive methods for long term affects our body, brain and nervous system. The system here leads the patient to feel more helpless and it creates more uneasiness in their body. Sometimes because of heavy drug they tend to have very less sleep and also have suicidal thoughts. Post Covid the number of suicidal deaths has increased and the majority being young people and they also easily get into the bad habits of smoking, consuming alcohol and drugs which leads to slow death.

3Proposed System:

In Proposed System, to overcome the existing problem we use non invasive techniques to help them overcome their hyper tension, restleness and provide them therapeutic solution which gradually helps them come out of the trauma state and prevents suicide(s). The device proposed in our system is portable and can be used daily irrespective of their age and anyone can use this device on a daily basis which helps them to calm down realize and act on the situation. Our device will really be helpful for people who has suicidal thoughts, hypertension, anxiety and depression and also helps them to stay away from bad habits by treating them non-invasively.

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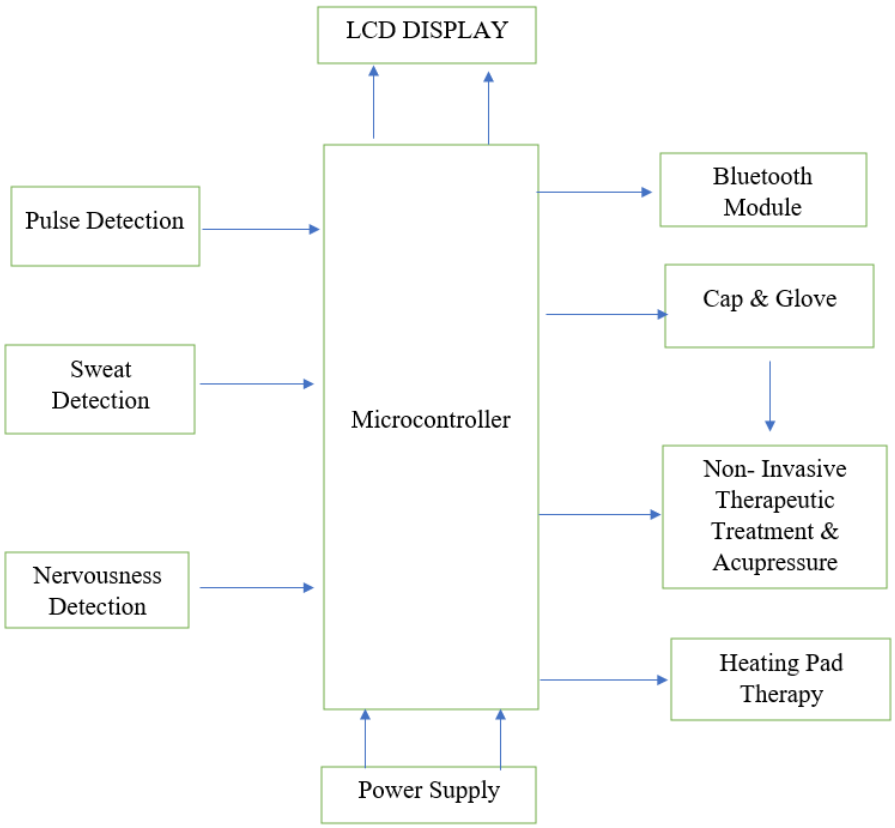
3.1 BLOCK DIAGRAM:



3.2Working:

We use a stepdown transformer for power supply to our components. Arduino microcontroller takes the person's pulse, sweat and restlessness as an input and if the readings are abnormal the therapeutic treatment is given as output. Out of these three parameters, treatment starts only when there is some abnormal in any of the two parameters. Sometimes there may be a difference in any one parameter it won't start treatment for single abnormal parameter. There is LCD display for displaying the patient's vitals and to display alert message. We also use a Bluetooth module to wirelessly transmit our data, so that we can view the vitals and alert messages via our phone or any other receiving device.

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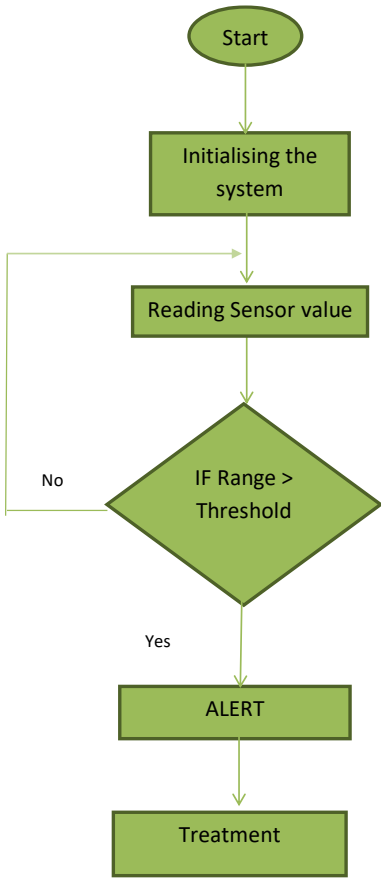
3.3Flowchart:



3.4Advantages of Proposed System:

The proposed system has several advantages compared to the existing system were it is easily wearable, user friendly, cost efficient and it can be used by all. And it can be closely monitored by the normal people without any preferred studies taken for it.

Treatments we provide are completely non-invasive there won't be any side effects or overdosing, more like a prevention treatments. If a patient start getting anxious or nervous we can identify and give therapeutic head massage using a cap and we use glove for acupressure treatment and also to keep your body warm we use a heating pad. These treatment in turn help the patient to reduce their stress level and nervousness.

4 RESULTS AND DISCUSSION

4.1 PULSE MONITORING SENSOR

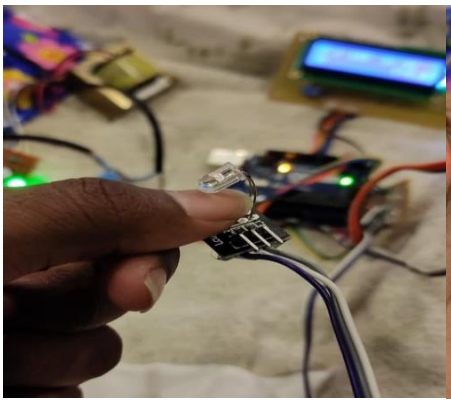


Fig. 4.1 pulse monitored **Fig. 4.2 Sweat Sensor**

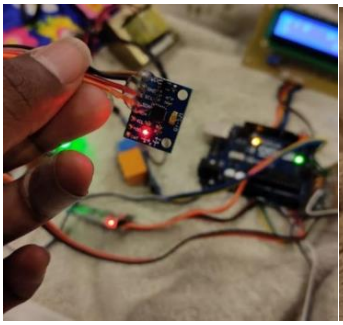


Fig. 4.4 Accelerometer sensor **Fig 4.2 Measurements**

The fig. 4.1 shows how the pulse of the patient is monitored and Fig. 4.2 used to measure the sweat in patient body and Fig. 4.3 used to find how much the patient affected by nervousness and the fig. 4.4 how it has been taken displayed in the LCD monitor to help the doctors for the study purposes.

4.3 THERAPEUTIC TREATMENT

Fig. 4.5 Heating Pad

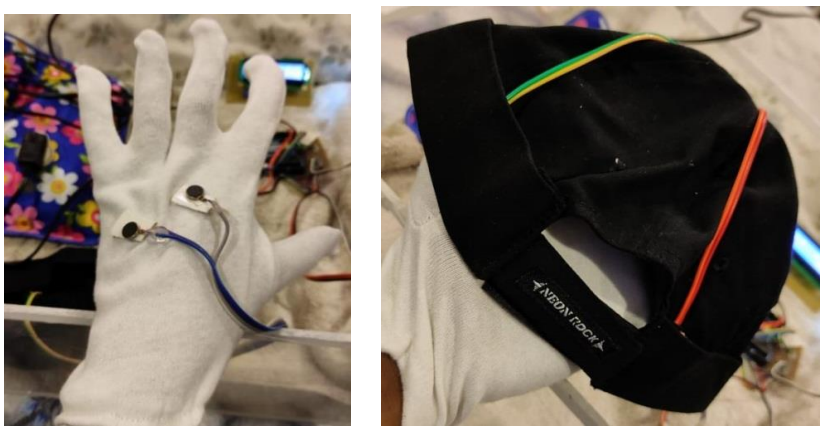


Fig. 4.6 Acupressure and Relaxation

In this, Fig. 4.5 and Fig. 4.6 are the therapeutic treatments we used in this project, In which the vibrators are used as an massaging equipment in the hand as gloves and in head as cap. Heating pad is also used for heat massages. A therapy that is intended to stop a medical condition from progressing any further. A medication taken at the earliest signs of a disease, such as an analgesic taken at the very first symptoms of a migraine headache to prevent it from getting worse, is an abortive therapy.

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4.4 BLUETOOTH MODULE

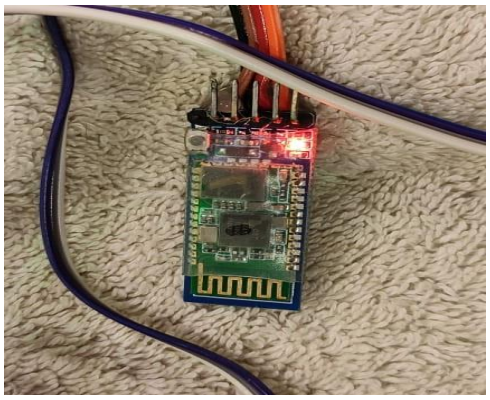

Fig.4.7 Bluetooth module

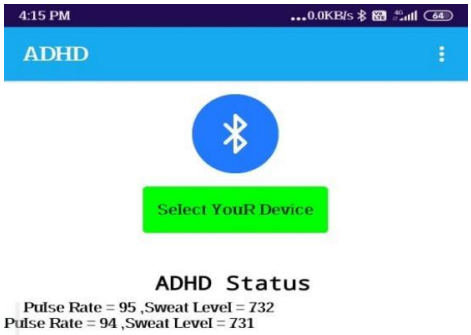

Fig 4.8 App Readings

Fig 4.7 is the Bluetooth module used to send or transfer the data from the Arduino board to the system to maintain it and Fig 4.8 helps to see the received data from Arduino board and it will be recorded for long time when the system is switched on for the usage and it will be stored in the device.

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4.5 OUTPUT

Fig. 4.9 Before the patient usage

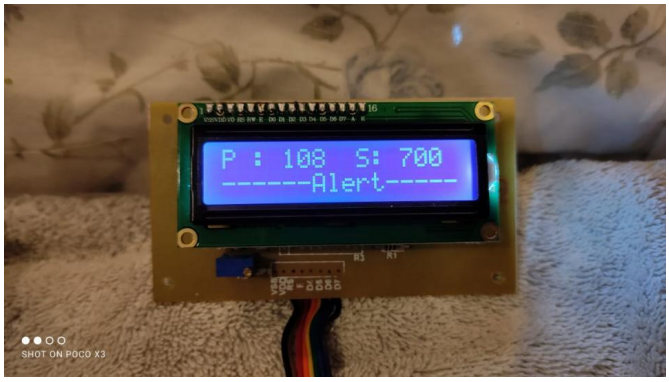

Fig. 4.10 At the time of alert

In this the Fig. 4.9 and Fig. 4.10 shows the working of the project. When the pulse of a person is beyond 80 and the sweat of the person comes out more beyond 600 rate and the accelerometer is used to find nervousness and measured for a count of minimum 5.If the nervousness, sweat, and pulse rate goes beyond the minimum value the therapeutic treatment starts over here and vibrator and heating pad starts to work for the treatment.

In addition to that the readings are recorded when the system is switched on so that it can be used for future purpose for the medical usages.

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Depending on the patient the ADHD syndrome changes one after the other so we cannot give equal treatment for every patients but we can cure them in the starting stage of the problem with our therapy.

5 CONCLUSION AND FUTURE SCOPE

Many people now are struggling because of ADHD problems, even the small aged peoples are also now been porn to this illness, To over come this we can use this therapy in a positive way and everybody can make use of it easily.

In the future, it is highly useful for all the teenagers and aged people to overcome stress, and will give them long life to live longer period. In future we can add some more sensors to detect the problem accurately and give everybody a peace and tension free happy life.

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