

Chapter 25

Use of IoT and Different Biofeedback to Measure TTH: An Approach for Healthcare 4.0

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ABSTRACT

This chapter applied the random sampling in selection of the subjects suffering with headache, and care was taken that they ensure to fulfill the International Headache Society criteria. Subjects under consideration were assigned the two groups of GSR-integrated audio-visual feedback, GSR (audio-visual)- and EMG (audio-visual)-integrated feedback groups. In 10 sessions, the subjects experienced the GSR and EMG BF therapy for 15 minutes. Twenty subjects were subjected to EEG therapy. The variables for stress (pain) and SF-36 (quality of life) scores were recorded at starting point, 30 days, and 90 days after the starting of GSR and EMG-BF therapy. To reduce the anxiety and depression in day-to-day routine, the present research work is shown as evidence in favor of the mindful meditation. The physical, mental, and total scores increased over the time duration of SF-36 scores after 30- and 90-days recordings ($p < 0.05$). Intergroup analysis has demonstrated the improvement. EMG-audio visual biofeedback group also showed highest improvement in SF-36 scores at first and third month follow up. EEG measures the Alpha waves for the subjects after meditation. GSR, EMG, and EEG-integrated auditory-visual biofeedback are efficient in solution of stress due to TTH with most advantage seen.

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1. INTRODUCTION

1.1 IOT

It is a technology that has made the non-connectivity appliance a connectivity appliance. The appliances that contain technology that helps us to communicate us with human and technology. Let us take some example the GPS is a latest technology that are inbuilt in car help the driver to make it easy to travel within the road, i.e. it is that technology in which we require internet base technique.(Rubin, 1999)

1.1.1 History Of IoT

IoT has evolved when the major language that are not famous on that days such as machine language, commodity analysis etc. Now a days Automation, control system, wireless sensor networks that are connect to internet and helps us to make us easier to do work.

Kevin Ashton in 1999 was first who coined the term IoT i.e. “Internet of Things”. But in earlier the concept of IoT was purposed in Carnegie Mellon University in 1982 that work on the concept of Network smart devices.

Now a days the technology is increasing day by day is increasing day by day like CISCO is introducing a new technology and in future the technology will replace every human work with this technology. (Rubin, 1999)

1.1.2 Applications

The application of IoT is usually bifurcated among infrastructure, industry, commercial and consumer spaces. Many technologies have being evolved in this field some are describing as-

a-Smart Home: It is a future upcoming home in this world. These technologies include the theory of Automation. This include smart lighting, smart lock system, smart kitchen, even we has wireless technology to which we can speak like GOOGLE assistance, amazon echo, SIRI in apple IOS and, many other. This technology helps to make our work easier and make interactive home design that help and attract the other. This technology is basically helps to upgrade our system. Many companies are now being evolving now days like APPLE, SAMSUNG and LENOVO etc.(Rubin, 1999)

b- IoT as Medical Health Care: IoT helps in medical field to make our future bright such as, major technology has being evolved in this field such as pacemaker.

With the help of IoT we can create digitalized health care facilities; we can connect to medical resources easily and can get medical facilities easier.

Devices enabled with IoT services are applicable for remote health monitoring and especially in emergency notification facilities. They may help us in from blood pressure and heart rate monitors and latest gadgets like pacemakers to monitor specialized implants.

Now a days “smart beds” can be seen in the medical facilities that is a another a feature of IoT. Doctor can interrogate their patient with the help of video call from far away from the place, even the nurses can be appointed through internet facilities. A 2015 Goldman Sachs reported that by increasing revenue and decreasing cost, gadgets being used for health care devices in USA are helping to save nearly \$300 billion in annual expenditures in health sector.

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