Literature Survey

Sr. No.	Title Of Paper	Name of Authors	Published Year	Remarks
1.	Stress Detection with Machine Learning and Deep Learning using Multimodal Physiological Data	Pramod Bobade Department of Computer Science and Engineering National Institute of Technology, Karnataka Surathkal, India pramodbobade2@gmail.com Vani M. Department of Computer Science and Engineering National Institute of Technology, Karnataka Surathkal, India vani.nitk@gmail.com	2020	• When a person gets stressed, there are notable shifts in various bio-signals like thermal, electrical, impedance, acoustic, optical, etc., by using such bio-signals stress levels can be identified. • The accuracies for three-class (amusement vs. baseline vs. stress) and binary (stress vs. non-stress) classifications were evaluated and compared by using machine learning techniques like K-Nearest Neighbour, Linear Discriminant Analysis, Random Forest, Decision Tree, AdaBoost and Kernel Support Vector Machine. • They had used and compared the performance of five machine learning algorithms for stress state detection: K-Nearest Neighbour (KNN), Linear Discriminant

				Analysis (LDA), Random Forest (RF), Decision Tree (DT), AdaBoost (AB).
				• WESAD is the dataset that is used for this study.
				• Various statistical features, e.g., the standard deviation, mean, minimum, and maximum value, were computed on the raw ACC signal,
2.	A Decision Tree Optimised SVM Model for Stress Detection using Biosignals	Alana Paul Cruz, Aravind Pradeep, Kavali Riya Sivasankar and Krishnaveni K.S	2020	• The paper [6] discussed SVM model to detect stress using ECG as the parameter. QT, EDR and RR were the input features used. The dataset was from Automobile drivers' database. It classifies the output into two categories i.e. Stressed or Not Stressed. The model was first trained with SVM models like Linear, Quadratic, Cubic with default kernel function.
				• Decision Trees are a kind of Supervised Machine Learning algorithm used for predictive modelling
				• The classification is done using various

				QRS detection algorithms and other functions in MATLAB.
				• Initially, the model was trained using Cubic SVM with Gaussian Kernel. For a better model, here we have used Tree Optimised SVM which is a combination of Decision Tree and SVM algorithms.
3.	Automatic Stress Detection Using Wearable Sensors and Machine Learning: A Review	Shruti Gedam Dept. of Computer Science & Engg. Birla Institute of Technology, Mesra Ranchi, India shrutgedam@gmail.com Sanchita Paul Dept. of Computer Science & Engg. Birla Institute of Technology, Mesra Ranchi, India sanchita07@gmail.com	2020	• Mostly wearable sensor devices like smart band[3], Chest belts[2] are used for data collection. • A Holster unit was used with LI-PO battery and PC USB Client software for detection of stress[2]. An Amulet wearable platform named StressAware was developed in [7] using SVM. This real time applications classifies the stress level of individuals by continuously monitoring HR and HRV data. • It is found that features extracted using Heart rate, Heart rate variability and skin conductance are more useful in prediction of stress

					level of an individual while Support vector machine, Random forest and K-Nearest Neighbor are the most effective classification algorithms.
4.	Machine Learning and IoT for Prediction and Detection of Stress	Mr.Purnendu Shekhar Pandey BML, Munjal University, Gurgaon Haryana, India purnendu.pandey@bml.edu.in	2017		• To detect the stress beforehand we have used heart beat rate as one of the parameters. Internet of Things (IoT) along with Machine Learning (ML) is used to alarm the situation when the person is in real risk. ML is used to predict the condition of the patient and IoT is used to communicate the patience about his/her acute stress condition. • Remote Stress detector is an IOT device which can detect the stress level of a person using his/her heartbeat reading. • This device locally collects heart beat reading from a person and sends it to a server on Digitalocean. • Two algorithms for classification are being used VF - 15 algorithm, which is

				a feature interval based classifier, which creates classification intervals during training and use it to test the classifier gives an accuracy of 62 % and Naive Bayes approach which is a Bayesian classification algorithm gives 50 % of accuracy while testing.
5.	Stress detection using deep neural networks	Russell Li and Zhandong Liu	2020	• To address the challenges in manual feature engineering, we developed a deep 1D convolutional neural network and a deep multilayer perceptron neural network for stress detection and emotion classification • The datasets from Schmidt et al. [24] were used for neural network training and testing. • The networks analysed physiological signals measured from chest-worn and wrist-worn sensors to perform the two tasks of binary stress detection and 3-class emotion classification.