



Abstract— Currently, many people feel symptoms of stress due to lack of adequate rest. Which at this time the person will carry out activities that are very heavy both from tasks that are too heavy, work pressure that accumulates, and much more. People who experience stress symptoms sometimes don't know what causes stress. Through this research a learning machine will be made, using the Artificial Neural Network algorithm, will analyze heart rate data or BPM from 7 patient data per day, using a Fitbit smart watch will display several data such as falling asleep, waking up, REM (Rapid Eyes Movement) and, well, from the results of the data collected from the patients. Total data in this research are 36224. This research process will show the best accuracy results from several types of Artificial Neural Network algorithms. At the processing stage of the patient's heartbeat dataset, a comparison will be made between the types of Artificial Neural Network algorithms. The research will obtain the highest accuracy value of 81% from the results the Artificial Neural Network algorithm.

Keywords — *Stress Detection, Sleep data, Artificial Neural Network (ANN), Timeseries Heart Rate, REM*