1. INTRODUCTION

Stress is a subjective experience based on a person's perception of the situation they face. Stress is related to reality that does not match expectations or stressful situations. This condition causes feelings of anxiety, anger and frustration.

In general, everyone has experienced stress. Because stress is a part of human life, meaning that humans will never escape the experience of feeling tension in their lives. Moreover, due to a poor lifestyle through the results of a survey by the health team where the start of a healthy life starts with adequate rest, people who are sleep deprived are usually affected by symptoms from mild to severe illnesses such as insomnia, stress, anxiety, getting sick easily and having difficulty recovering, memory loss and the appearance of self-aging [1].

Other studies have shown that stress causes many sleep difficulties, such as restless sleep. However, far less work has been done on real-life stress detection through short-term HRV analysis. [1][2]The demand for short-term HRV analysis to monitor the well-being status of individuals is growing, due to the diffusion of wearable sensors in healthcare and consumer devices such as mobile phones and smartwatches [3].

Stress also becomes acute with decreased slow wave and rapid eye movement (REM) Vital signs, neural activity (electroencephalogram ((EEG)), heart rate (electro cardio- gram ((ECG)), skin temperature, and skin conductance response (electrodermal activity) can provide important information about an individual's health status [5].

Heart rate variability (HRV) is a measure of the time variation between adjacent heartbeats, otherwise known as the RR interval. Some of them involve measuring certain points, while the author will carry out the process of recapping data during periods of rest and/or sleep. Some devices have the ability to continuously measure HRV for at least 24 hours.Stress is a major factor that affects students, and it often occurs in final year students who are higher than the general public. Students face various stressors such as academics, financial problems, relationships, and work-study-family imbalance. Among the measured signals, heart rate (HR), heart rate variability (HRV), and skin conductance (SC) are of [6].

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In this study, 3 different types of classifiers from machine learning were evaluated in an effort to detect stress levels, including Support Vector Machine (SVM), Random Forest (RF), and K-Nearest Neighbors (KNN). The evaluation results show that the Random Forest (RF) model gives the best performance [7]. The author will analyze the results of the Artificial Neural Networok (ANN) type to get the best accuracy results in the architecture at each layer that will be made by this research.

Particular interest. HR and HRV are measured using photoplethysmography (PPG), an optical technique that allows for the recording of variations in the blood volume pulse (BVP) based on the amount of light absorbed by the blood vessels [5] and academic outcomes, such as poor academic performance, suicidal ideation, substance abuse including binge drinking, and alcohol-related problems. From the results of this analysis, students who experience excessive pressure can be more susceptible disease [9].

Academic stress is a type of stress caused due to increased class workload, lower than expected status, expectations of graduation, and severe disagreements with mentors [7]. Academic stress triggers individual perceptions of academic frustration, academic conflict, academic pressure, and academic anxiety. Academic stress is a widespread phenomenon at various stages of the education system, and it adversely affects the personality, emotional, and physical well-being of students. As a result, stress that is not handled well can lead to sleep disturbances, decreased appetite, fatigue, anxiety, depression, or ot [9] her health problems. This can affect a student's quality of life and interfere with their ability to focus and study [10].

REM (Rapid Eye Movement) may also contribute to maintaining optimal emotional homeostasis by reducing the accumulated negative effects of lack of rest or REM (Rapid Eye Movement) which, in turn, is associated with increased emotional reactivity compared to lack of rest. At a theoretical level, it has been suggested that REM (Rapid Eye Movement) sleep causes temporary and time-locked activation of the amygdala which confirms the role of the limbic system in the reprocessing and consolidation of emotional experiences during REM (Rapid Eye Movement) sleep [2]-[4].

Non-Rapid Eye Movement (NREM) and rapid eye movement (REM) sleep stages is superimposed on the two-process model. These inter- actions have been studied at length and are built into more recent mathematical models of human sleep [14]. Data HRV device products vary in quality and also differ in user acceptance based on usability, aesthetics and ease of use. Quality When deciding to choose a sensor for HRV monitoring, with the help of a sensor tool from a smart watch it will make it easier to detect heart rate [3].