Human Stress Level Detection: Machine Learning Classification for Detecting Human Stress Levels

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Abstract: The major goal of this study is to use vivid Machine Learning and Image Processing methods to identify stress in the human body. Our system is an upgraded version of previous stress detection systems that did not include live detection or personal counselling,but this system includes live detection and periodic analysis of employees,as well as detecting physical and mental stress levels in them and providing proper stress management remedies via a survey form.This study mentioned the future direction for the upcoming research in more scientific and significant manner.

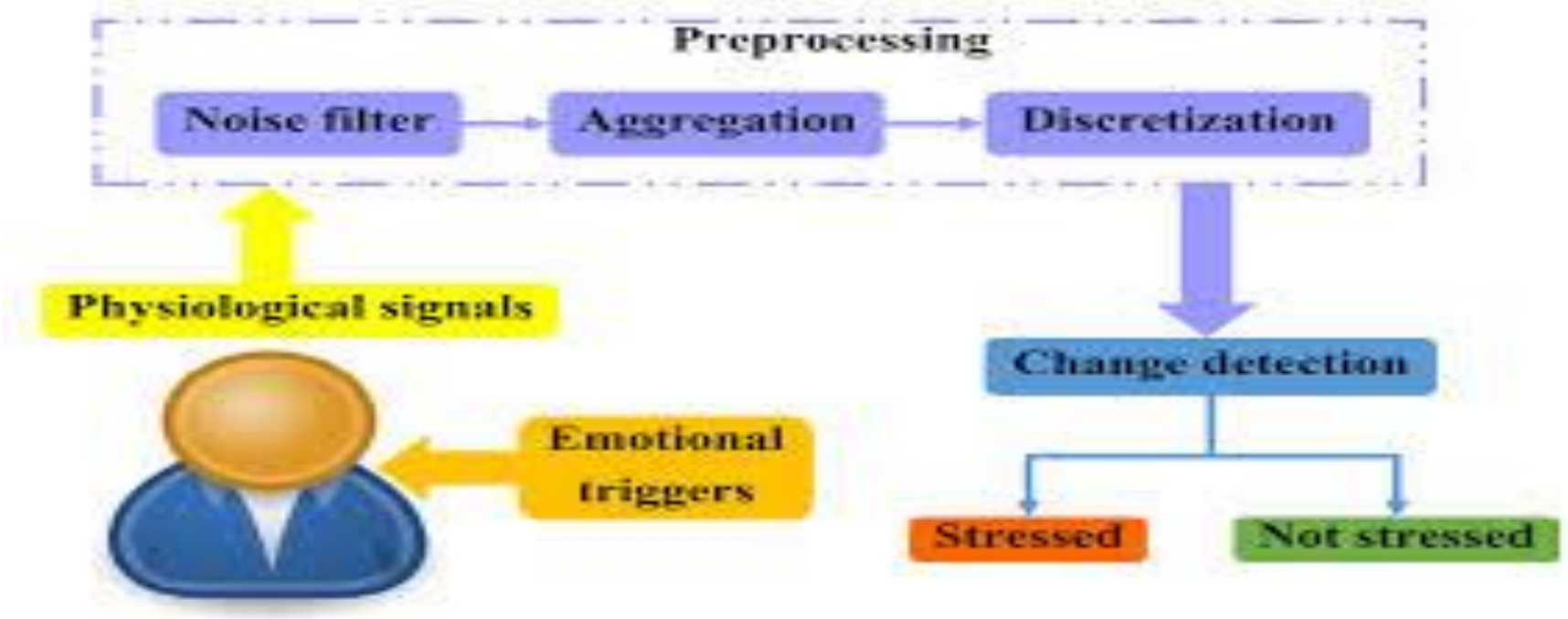
1. INTRODUCTION :

- Stress management systems are necessary for detecting stress levels that affect our socio-economic situation. According to the world health organisation, stress is a mental health disorder that affects one out of every four people (WHO). Mental and financial troubles, as well as a lack of clarity at work, bad working relationship, despair, and, in extreme situations, death, are all symptoms of human stress. While it is impossible to totally eliminate stress, taking preventative measures may help you cope.
- Nowadays, the IT industry is creating a new standard in the market by introducing new technology and goods. Employee stress levels were also found to set the bar high in this research. Despite the fact that many companies provide mental health benefits to their workers,the problem remains out of control .

2. LIBRARIES,TECHNOLOGIES USED

- Stress detector classifies a stressed individual from a normal one by acquiring his/her physiological signals through appropriate sensors such as Electrocardiogram (ECG), Galvanic Skin Response (GSR) etc,.
- Some methods used in supervised learning include neural networks, naïve bayes, linear regression, logistic regression, random forest, and support vector machine (SVM).
- Machine learning is one of the fundamental techniques used to detect stress in recent years (either supervised or unsupervised learning). Supervised learning from these is used the most for solving mental health problems (Mutalib et al., 2021).

3. DESIGN OR FLOW OF THE PROJECT



In HR management, Artificial Intelligence and Machine Learning technology are now utilized to enhance the effectiveness of HR operations, including facilitating decision-making, automating processes, simplifying onboarding, improving the employee experience, providing strong support for decisions, and more.

4. CONCLUSION

- It was found that physiological signals can accurately detect stress levels and the system has the potential to help people better manage their stress. The document discusses speech emotion recognition using machine learning.
- The results prove that the using DT has a competitive performance compared to the others classifiers for detecting stress and non- stress and classifying stress levels. Further work can be done by using more classifier and applied 10- fold cross validation.
- The machine learning model used for activity recognition relies on top of the devices' available sensors. However, analysing this data can be a big challenge. Indeed, human activities are complex, and there are differences between individuals.