

ABSTRACT

Stress is an individual reaction caused by stressor. It will cause a fatal effect if it is not properly managed. We need an early stress indication i.e. physiological responses and psychological responses to prevent its effect. Physiological responses are more objective, easily identifiable, observable and measurable than psychological responses. A lot of stress detector are developed using physiological parameters, but those detectors are expensive and have been developed using only one parameter.

This thesis used three changes of physiological parameters i.e. resistance of human skin commonly referred to as GSR (galvanic skin response), beat rate, and body temperature. Selection of these three parameters are based on parameter sensitivity to changes in stress levels, simplicity and ease of processing of measurement results to a portable system.

The result of three parameters were amplified and filtered. Then they were used as input port of ADC (Analog to Digital Converter) and microcontroller timer. The microcontroller classified inputs according to the level of stress. The level determined based on DASS42 test. Output in the form of stress level and the value of sensor readings were displayed on the LCD display.

Stress detector in this thesis only can be categorized to three levels of stress conditions, i.e. normal, mild, and medium with 60% performance value. Whereas beat rate system has average calculation difference 7.45 compared with manual calculations. Temperature system has average value of difference 0.3 compared with standart thermometer. GSR system has linear propotional value to the stress levels increase.

Keyword: GSR, heartbeat, temperature, stress level