

Design and development of an Emotional Stress Indicator (ESI) kit

Abstract

Emotional Stress Indicator (ESI) kit is a wearable sensor device that used to measure the human stress level. Many people out there do not aware about their level of stress that will give a big impact in their life. So this study is aimed to design and develop an Emotional Stress Indicator (ESI) kit which can display stress level among people. This ESI kit is constructed based on human skin resistance which is changed upon condition. Human skin offers some resistance to current and voltage. The skin resistance changes with the emotional state of the body. From galvanic skin response theory, resistance varies inversely proportional to the stress. Stress level is high when the resistance of skin is less. In the relaxed state, the resistance offered by the skin is as high as 2 megaohms or more, which reduces to 500 kilo-ohms or less when the emotional stress is too high. The reduction in skin resistance is caused by an increased blood flow and permeability followed by the physiological changes during high stress. This increases the electrical conductivity of the skin.

Keywords — Indicator, stress measurement, skin resistance, sensor