Faculty of Electrical Engineering & Computer Science
Master Degree Course Electronics Engineering, MSc EE

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Development of a Wearable Body Health Monitoring Device.

ABSTRACT - Masterthesis

In this research work, the main objective is to develop a health monitoring system which can measure essential physiological parameters of humans especially athletes and old persons. It is a portable, easy to handle and a low cost solution for hydration level in skin, body temperature, oxygen level in blood and pulse rate measurement. Measurements of these parameters help to diagnose skin, respiration and other diseases at very early stage by patient himself. But accurate measurement of hydration level is tedious task and large laboratory type equipments are required to model water content in human body whereas portable equipments for this purpose are not realistic so far.

After detailed study and experimentation, first a sensor is developed and tested which combines capacitive and heat flow principle of measurement of hydration. To minimize the effect of different working environments and type of skins and to achieve accurate results, body temperature and environment temperature values are also recorded. For other parameters like oxidation level and pulse rate a technique based an optical transmission and absorption is implemented. A finger probe is used which contains two light sources and a photodiode an opposite side of finger. Moreover, a wireless data transmission structure is implemented to connect module to an Android Phone using Bluetooth interface. It will keep recording patient data, displaying that data and can do many other things including suggesting food and medicine and contacting doctors in case of any emergency.