

## **Sportband: An Idea for Workout Monitoring in Amateur and Recreational Sports**

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**Abstract :** Workout safety is one of the most significant challenges of recreational sports. Loss of water and electrolytes is a consequence of thermoregulatory sweating during exercise. The rate of sweat loss and its chemical composition can fluctuate within and among individuals. That is why we propose our sportband 'Flow' as a device for monitoring these parameters. 'Flow' consists of two parts: an intelligent module and a mobile application. The application allows verifying the training progress and data archiving. The sportband intelligent module includes temperature, heart rate and pulse measurement (non-invasive, continuous methods of workout monitoring). Apart from the standard components, the device will consist of a sweat composition analyzer situated in sportband intelligent module. Sweat is a water solution of numerous compounds such as ions (sodium up to 1609 µg/ml, potassium up to 274 µg/ml), lactic acid (skin pH is between 4.5 - 6) and a small amount of glucose. Awareness of sweat composition allows personalizing electrolyte intake after training. A comprehensive workout monitoring (sweat composition, heart rate, blood oxygen level) will provide improvement in the training routine and time management, which is our goal for the development of the sweat composition analyzer.

**Keywords :** flow, sportband, sweat, workout monitoring

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