Determination of biological expression signals on a new handheld biochip-based microsystem

Lopes P.A.C., Germano J., Almeida T.M., Sousa L., Piedade M.S., Cardoso F., Ferreira H.A., Freitas P.P.

INESC-ID, IST, Rua Alves Redol n. 9, 1000-029 Lisboa; INESC-NM, IST, Rua Alves Redol n. 9, 1000-029 Lisboa

Abstract: This paper presents techniques developed for the extraction of biological information in a recently developed handheld biochip-based microsystem. The microsystem is based on a magneto-resistive array biochip composed of a number of sensing sites with Magnetic Tunnelling Junctions (MTJ) and diodes. To drive the MTJ, different techniques are addressed with different types of signals. Different filtering strategies are also studied, which allow the recovery of bio signals from the noise without increasing too much the time required to access all the sensors, and the power consumption of the system. Finally, techniques to deal with the variability of fabrication parameters of the MTJ and of the diodes are addressed. In conclusion, experiments with the system in a setup to detect actual bio signals are presented with encouraging results.1 © 2006 IEEE.

Year: 2006
Source title: IEEE 2006 Biomedical Circuits and Systems Conference Healthcare Technology, BioCAS 2006
Art. No.: 4600307
Page : 57-60
Link: Scorpus Link
Document Type: Conference Paper
Source: Scopus

Authors with affiliations:

1. Lopes, P.A.C., INESC-ID, IST, Rua Alves Redol n. 9, 1000-029 Lisboa
2. Germano, J., INESC-ID, IST, Rua Alves Redol n. 9, 1000-029 Lisboa
3. Almeida, T.M., INESC-ID, IST, Rua Alves Redol n. 9, 1000-029 Lisboa
4. Sousa, L., INESC-ID, IST, Rua Alves Redol n. 9, 1000-029 Lisboa
5. Piedade, M.S., INESC-ID, IST, Rua Alves Redol n. 9, 1000-029 Lisboa
6. Cardoso, F., INESC-NM, IST, Rua Alves Redol n. 9, 1000-029 Lisboa
7. Ferreira, H.A., INESC-NM, IST, Rua Alves Redol n. 9, 1000-029 Lisboa
8. Freitas, P.P., INESC-NM, IST, Rua Alves Redol n. 9, 1000-029 Lisboa