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Analysis of phase detection circuit for human activity (Conference Paper)

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Abstract

This paper describes a method for analysing and detecting the daily activities of a person with the help of phase sensitive detector analysis. The phase sensitive detector (PSD) is implemented in the circuitry to measure the phase and amplitude change produced, I and Q, hence the amplitude and the phase of the voltage. The basic components of PSD analysis are modulation, multiplication and low pass filter. This technique will be able to distinguish a person's daily activities such as walking, fall events, entering or leaving a room by comparing the amplitude and phase of the output results to the input amplitude and phase change. A detailed analysis is carried out, which reveals equations that can assist in measuring the phase and amplitude information. Furthermore, MATLAB simulation results offers consistent results when compared with theory, hence, this determines the suitability of the model proposed. Likewise the data obtained can aid in the ability to analyse the movement of the person. © 2014 IEEE.

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