Health monitoring and body area network (BAN) applications require wireless intelligent monitoring devices and information system. The aim of our research is to propose a prototype of wearable wireless monitoring device optimized to supervising the patient and examine the influence of movement on the heart rate during normal daily activities. Main rule of the proposed system consists in simultaneous acquisition and automatic analysis of two bipolar ECG and three-axis acceleration (ACC) signals measured by means of wireless, battery-operated prototype of Revitus ECG module. The patients data buffered in the internal memory module are transmitted to the PC via Bluetooth connection online allowing for real time processing or offline when data storage is completed. The processing of the ECG and ACC data is performed by the custom-developed software installed on PC. Key functionalities of the software include calculating and displaying the values of heart rate variability parameters and the quantitative measure of patient movements. RR intervals were determined from the ECG with use of the filtering-thresholding technique, while the motion factor was calculated as sum of ACC variations from all directions in 10s moving window. All recorded information are also uploaded to a purposely-designed medical web server for the storage and display as a web page for authorized doctors or patients family. The system was tested on 10 healthy volunteers (mean age: 35 years). Each of them was monitored during common daily activities such as: working, resting, walking, physical exercising, etc. The proposed architecture and algorithms proved to be suitable for home-care patient surveillance. Presented system can also be used for computer-assisted physical rehabilitation and ambulatory monitoring.