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Learning Example of a Biomedical Project from a Real Problem of Muscle Fatigue

Authors : M. Rezki, A. Belaidi

Abstract : This paper deals with a method of learning to solve a real problem in biomedical engineering from a technical study of muscle fatigue. Electromyography (EMG) is a technique for evaluating and recording the electrical activity produced by skeletal muscles (viewpoint: anatomical and physiological). EMG is used as a diagnostics tool for identifying neuromuscular diseases, assessing low-back pain and muscle fatigue in general. In order to study the EMG signal for detecting fatigue in a muscle, we have taken a real problem which touches the tramway conductor the handle bar. For the study, we have used a typical autonomous platform in order to get signals at real time. In our case study, we were confronted with complex problem to do our experiments in a tram. This type of problem is recurring among students. To teach our students the method to solve this kind of problem, we built a similar system. Through this study, we realized a lot of objectives such as making the equipment for simulation, the study of detection of muscle fatigue and especially how to manage a study of biomedical looking.

Keywords : EMG, health platform, conductor’s tram, muscle fatigue
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