
Pulses Counting

Problem Description

In many Internet of Things (IoT), there are various sensors collecting data like pulses and motion. In this etude, you are given samples of pulses directly collected from a pulses sensor, e.g., the .txt files. The data was collected with a sampling rate of 10Hz. If you plot the pulses data, you will see the pulses signal mixed with noises.

Task

1. Write a program to count the number of pulses as precisely as possible. To do so, you may need to use techniques like filter to remove the noises. However, you are free to choose any creative approaches, e.g., machine learning.
2. Explain your approach in a report.

Relates to Objectives

1.1, 1.3, 2.1, 2.2, 2.4, 2.6, 2.8, 3.1, 3.2, 3.5, 4.3, 4.4, 4.5, 4.8

(2 points, Pair)